The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. LXVII, NO. 22 CHICAGO, ILLINOIS NOVEMBER 25, 1916

FURTHER STUDIES OF THE PROTEIN POISON*

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During the past year our knowledge of the protein poison has been extended in several particulars. Underhill and Hendrix[1] have compared the action of the protein poison with that of the proteoses, and find a close resemblance. They state that the poison differs from the proteoses in that the former produces marked symptoms and even death in rabbits in relatively small doses. They call especial attention to this fact on account of the known refractoriness of rabbits to the proteoses. The protein poison also kills dogs, as shown by Underhill, in doses in which the proteoses have only a temporary effect, but the symptoms are the same. Edmunds did not find that the protein poison inhibits the coagulation of the blood in dogs, but Underhill has shown that this is a matter of dosage, and when the dose is large enough the blood remains permanently fluid. The so-called peptone poison, proteoses and the protein poison are closely related, as shown by chemical reactions and physiologic effects, and it seems reasonable to assume that the active groups in all consist of identical or closely related bodies.

In a research carried on under my direction, Pryer[2] has presented evidence of the following conclusions:

1. All proteins contain a poisonous group, which is identical or closely similar in action.

2. From 1 gm. of casein enough of this poison can be obtained to kill 800 guinea-pigs when injected intravenously.

3. The protein poison is not beta-imidazolylethylamin or histamin, although the physiologic effects of the two are very similar.

4. The poison is not a cholin derivative.

5. The poison is a protein cleavage product, acid in reaction, capable of forming compounds and reacting much like the globulins in its behavior to neutral salts.

Levin, in a study conducted in my laboratory, has shown that the protein poison combines with Witte's peptone, egg white and other proteins, both in vitro and in vivo, and in doing so the action of this poison on animals is modified and partially neutralized. This matter needs further study.

In a research in my laboratory, Cumming and Chambers[3] have reached the following conclusions:

1. The protein poison can be obtained by the method of Vaughan and Wheeler from the tissues and organs of exsanguinated mammals.

2. Poisons thus obtained are toxic not only for heterologous, but also for homologous species.

3. The minimum lethal dose of these poisons is for the guinea-pig and rabbit in proportion to their relative body weights when given intraperitoneally; when given intravenously, however, it is, in proportion to body weight, twenty-five times as toxic for the guinea-pig as for the rabbit.

4. Tissue protein poison hastens the clotting of blood in vivo in the guinea-pig, rabbit and dog. On the other hand, casein protein poison retards or wholly prevents the clotting of dog's blood.

5. All the protein poisons tested inhibit the clotting of blood from the guinea-pig, rabbit and dog when added in vitro in certain percentages.

6. Witte's peptone does not inhibit the clotting of rabbit's blood in vitro when added in any amount from 1 to 10 per cent.

I have held most earnestly that the method employed by Wheeler and myself in the cleavage of proteins into poisonous and nonpoisonous parts, crude as I admit it to be, splits the protein molecule along definite lines, and that the fragments obtained are definite cleavage products and not mere degradation products. This claim has found confirmation in a research recently reported from my laboratory by Emerson and Chambers.[4] These investigators have applied a number of protein tests to the original protein and its fragments obtained by this method. Their findings are stated as follows:

1. The proteins and their fragments give the biuret test. The poisons give this test in much higher dilutions than the residues. This indicates that the proteins and their fragments contain acid amid groups and other substituted amid groups and that the products have not been deamidized in the cleavage.

2. Gies' biuret reagent gives similar results.

3. The proteins and their split products give the xanthoprotein test, the poisons in higher dilution than the original proteins and the residues, indicating that all contain benzin nuclei, and in the cleavage these nuclei are concentrated in the poisonous part.

4. The original proteins and the poisonous fragments give the Millon test, the latter in higher dilutions than the former, while the residues do not give this test, thus indicating that all the monohydroxybenzin nuclei are concentrated in the poisonous protein in the cleavage.

5. The original proteins and the poisonous fragments give the Bardach test, while the residues do not.

* Read before the Section on Pathology and Physiology at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

1. Underhill and Hendrix: Jour. Biol. Chem., 1915, xxii, 465.
2. Pryer: Jour. Lab. and Clin. Med., i, No. 7.
3. Chambers: Jour. Lab. and Clin. Med., i, No. 6.
4. Emerson and Chambers: Jour. Lab. and Clin. Med., i, No. 8.

According to the accepted idea, this indicates that the residues should not be classed as proteins.

6. The proteins and the residues give the Molisch test, while the poisons do not, indicating that all the carbohydrate group is concentrated in the residue in the cleavage.

7. Proteins and both fragments give the Adamkiewicz test, but the color produced with the poisons is uniform whatever the source of the poison and different from that given by the residue. This test is usually considered as indicating the presence of tryptophan, but the shade of color may be influenced by the presence of tyrosin, which is concentrated in the poisonous protein.

8. The proteins and residues give the Hopkins-Cole reaction, while the poisons do not. The poisons fail to give this reaction because they contain no carbohydrate. When furfurol is added, the poisons do respond to this reaction.

9. Similar results are obtained with Benedict's modification of the Hopkins-Cole reagent.

10. The proteins and residues give the benzaldehyd test, while the poisons do not.

In a second communication, Emerson and Chambers[4] report on the relative responses of the proteins and the split products to the ninhydrin test. Their conclusions are as follows:

1. The proteins respond to this test in dilutions up to 1:10,000. The poisons are equally responsive to the test. The residues fail in dilutions of 1:100.

2. Dilute acids and alkalies interfere with this test.

3. Sodium chlorid slightly interferes.

4. Prolonged heating develops the delicacy of this test.

I have found that when a drop of an aqueous solution of the protein poison is placed on the skin and scratched in with some blunt instrument, a well marked local reaction develops within a few minutes. Local tumefaction accompanied by itching results. The possible relation of this to the hives and to the urticaria of serum disease suggests itself.

Recently Smith and I have found that substances resembling the protein poisons can be extracted from normal tissues. The resemblance of these bodies to the protein poisons are both chemical and physiologic. They have been obtained from brain, heart, lungs, spleen, liver, stomach and intestinal walls, kidneys, and most abundantly from the voluntary muscle. In small doses they cause typical anaphylactic shock and death with the usual postmortem findings. Should it prove that such bodies are normal metabolic products, the protein poisons will become more interesting. Acidosis, eclampsia, uremia and other phenomena may be involved in their studies.

ABSTRACT OF DISCUSSION

DR. FREDERICK P. GAY, Berkeley, Calif.: As Dr. Vaughan's work has gradually evolved and become identified particularly with the phenomena of anaphylaxis, the real significance of the work has appeared, and that would seem to be the relation between the toxic and nontoxic substances in proteins. Dr. Vaughan was one of the first to find and to point this out, and particularly the method by which in the whole protein the toxic substance is masked by another substance, the toxic substance only appearing after the masking substance has been removed, either in the animal by the action of ferments formed by the injection of the whole protein, or in the test tube, as he was the first clearly to demonstrate. For some time I have been impressed, as have others, with the possibility of separating the true immunizing substance from the toxic substance. Dr. Vaughan has shown that that is possible. The protein poison is not the substance primarily that gives rise to the sensitization that splits the protein. We have a great future in bacterial therapy in the possibility of getting nontoxic substances which will give rise to high degrees of immunity without intoxication. Dr. Vaughan has stated conclusions which do not absolutely agree in two different respects. He has referred to these substances as probably proteoses in nature, and yet he regards the substance he produced by splitting with alcoholic potash as different from the degradation products. I wish he would make it a little clearer why he regards these substances as probably proteoses, and at the same time not the same as proteoses produced by the digestion of the proteins. It has been interesting in some work done in splitting proteins in endeavoring to determine the substance which would give antibodies to find that as you split the casein you eventually get a toxic substance when you reach the stage of polypeptids, and the minute you reach a toxic stage in the splitting of protein you lose the property of producing the antibodies. That agrees with the work of Dr. Vaughan. In a general way one may say that a protein that has become split up into a form where it is toxic ceases to be antigenic in nature.

I would like to ask Dr. Vaughan if he has done any transfer experiments. We have tried some of them in connection with typhoid immunity, and found that we could transfer this sensitivity of an immune animal to split up the whole protein. We have split up the typhoid bacillus by grinding and then macerating it and simply leaching out a poisonous substance, and we have found that the residue which was left as a sediment of such treated bacteria was more highly immunizing than the whole substance itself. It was not only more highly immunizing, but it was less toxic.

DR. ROBERT CURTIS BROWN, Milwaukee, Wis.: A hypothesis of my own is that the protein of our food, especially the animal protein, is a poison, and the reason that, as a rule, it does little harm is that the body has developed certain defenses to counteract it, among which defenses are the ductless glands. If you remove the thyroids from sheep or goats, they, being herbivorous animals, are not affected, but if you remove the thyroids from dogs, though they will live for a considerable time on bread and milk, they will die in convulsions in a few hours if fed on meat. This shows conclusively that the meat contains a poison which Dr. Vaughan has shown is the protein which will kill a dog when one of his natural defenses is removed. I have found by experiment on myself and others that if an excess of meat, meat soup, eggs or cheese is taken, the natural defenses of the body against protein are overcome and certain morbid manifestations are produced, such as headache, gouty pains in the muscles, nerves or joints, turgescence of the nasal mucous membrane, bronchial asthma and certain skin manifestations. I believe that protein poisoning is really the true explanation of the old lithemic diathesis. It is peculiar that certain people have an inherited susceptibility to protein poisoning and you will find various different symptoms of protein poisoning in different members of a susceptible family. These manifestations are continued through many generations; some will have gouty fingers, neuralgia; others respiratory manifestations; others intestinal or skin manifestations. Goiter is often found in these families. The explanation of goiter is that the gland enlarges in its attempt to manufacture more of the needed secretion for defense. If the oversecretion is large in amount the symptoms of exophthalmic goiter ensue. We can prove this by withdrawing the animal protein (which I have often done) and noting the rapid improvement. Acne, follicular tonsillitis and even ulcer of the stomach occur so frequently in persons having other manifestions of protein poisoning that it seems quite possible that the elimination of the protein poison is the primary cause and infection is secondary. Moles, warts and keratosis are so common in persons having symptoms of protein poisoning that it seems even possible that carcinoma may have for its primary cause the animal protein in our food. I believe the French school claims that carcinoma is found principally in gouty families.

DR. S. A. MATTHEWS, Lawrence, Kan.: If we shut out the liver in animals such as dogs, by means of an Eck fistula, we

bring on a condition of protein poisoning which is very peculiar, and which has been known since 1893. This poison seems to be something like the poison which brings about the symptoms observed in parathyroid tetany. When you bring on that condition, the injection of calcium salts will relieve it for several hours. This seems to be true in the convulsions which are brought on by meat feeding in Eck fistula dogs. If you add bone ash to the food you can keep dogs for a long time in good health and if you inject calcium salts, such as calcium lactate, it seems to have an inhibiting action on the poison and the animals can go for a long time without showing any symptoms.

DR. F. M. POTTENGER, Monrovia, Calif.: Dr. Vaughan's studies in protein give us a clue to the explanation of the phenomena of the tuberculin reaction. Recent observers have claimed that every phase of the tuberculin reaction can be explained on the basis of anaphylaxis. My studies in visceral neurology lead me to believe that the general tuberculin reaction is not wholly an anaphylactic reaction, but a toxic reaction, dependent on a shortened incubation period, during which time toxic molecules are constantly set free in large quantities. The rise of temperature and other toxic symptoms which are well known in the general tuberculin reaction are symptoms produced by stimulation of the sympathetic nervous system—such as fever, malaise, aching, chilliness, rapid heart action, decreased appetite, and inhibition of secretion and motility of the gastro-intestinal tract. Anaphylaxis, on the other hand, is an expression of stimulation of the greater vagus—thus we have spasm of the bronchial musculature, tendency to vomit (dog), involuntary expulsion of feces and urine, low blood pressure, low temperature, and collapse. From this it can be seen that the general tuberculin reaction is expressed through the sympathetic system, while the anaphylactic is expressed through the vagus system. Extreme toxemia, such as is represented by lowered blood pressure, sweating, and lowered temperature, probably results from a condition approaching sympathetic paralysis, which is more nearly like anaphylactic reaction. Extreme toxemia, however, fails to give other symptoms which are due to vagus stimulation, and which make up so prominent a part of the syndrome of anaphylaxis. Vaughan's work on the split products of the tubercle bacillus shows us how these two may be brought about. When tuberculin is injected into the patient having tuberculosis, the protein molecule is split up, liberating both the toxic and the sensitizing portions. If the dose is sufficiently large and a sufficient amount of the toxic molecules are set free, there results the toxic syndrome; if, on the other hand, there are sufficient of the sensitizing molecules set free, the phenomena of sensitization appear. This fact shows that the general tuberculin reaction is a reaction due to a shortened incubation period. Shortening of the period is due to the fact that the patient has previously been endowed with specific cellular defense against the products of the tubercle bacillus, whereby specific enzymes are present which split the tubercle products quickly, liberating large quantities of the toxins which result in the toxic syndrome. The sensitizing phenomena manifest themselves either with a local inflammation at the point of inoculation, or as a focal reaction in or near the focus of infection.

DR. A. B. WADSWORTH, Albany, N. Y.: I have been very much interested in Dr. Vaughan's work from the time it first came out, and also in some phenomena which developed in the course of experimental pneumococcus infections of the rabbit. One observation in particular, for which I have been unable to get any satisfactory explanation, is that following the inoculation of rabbits intravenously with the living pneumococcus, and with serum, there have been developed in certain series of experiments after varying intervals suddenly very acute convulsions, typical anaphylaxis—a reaction which I have been unable to explain. Series of five or six animals were inoculated, and in some of the experiments in from ten to twelve hours the animals would die in a few minutes with the same symptoms, all within half an hour, and the whole series would die inside of an hour. I have noted the same phenomenon following inoculation with living virulent organisms even up to thirty-six hours. I want to ask Dr. Vaughan if he has any suggestion explaining the toxicology of the reaction; should the poison be attributed to the splitting of the proteins of the pneumococcus cell or could the enzymes of the pneumococcus possibly develop poisons in the tissue substances comparable with the toxic element in the proteins which he has studied so extensively.

DR. A. W. CRANE, Kalamazoo, Mich.: I would like to ask Dr. Vaughan whether he has done anything with that part of the alcoholic mixture which is not soluble in water.

DR. VICTOR C. VAUGHAN, Ann Arbor, Mich.: The idea I mentioned that the protein poison is closely related to the proteoses is founded altogether on the similarity in their action and the simplicity and comparative relationship of the chemistry of the two. I do not know how better to explain it than to say that I regard a protein as a neutral salt, sodium sulphate, for instance, which is relatively innocuous. Split off a part of the base and you get an acid salt, which is a little more poisonous. Cut out the base entirely, and then you get free acid which has a very toxic action. I consider the protein molecule as made up of base and acid, the acid being the poisonous substance, and the base the non-poisonous substance. We have found that calcium has some neutralizing effect on the protein poison. If we take certain protein poisons, that obtained from casein, for instance, and incubate that poison with calcium, it is less poisonous. Years ago it was found that a certain degree of tolerance or immunity was induced in animals by simply injecting some foreign protein into the peritoneal cavity. One of my students found that by injecting some egg white or peptone into the peritoneal cavity and then injecting a fatal dose of the poison, it will not kill the animal. I went over those experiments, and he was right up to a certain point. It has a certain neutralizing effect, but a very limited one. I suppose it is because the free protein poison in the peritoneal cavity, when the peptone or egg white is injected just before, combines with the protein poison and to some extent neutralizes it. Two or three years ago I suggested that we might speak of "albuminal" diseases—diseases that are due to toxic products formed by the splitting up of proteins. I do not believe that Bright's disease is in all cases due to infection. I think it is often due to the absorption of unbroken proteins, or partially broken up proteins from the alimentary canal, and the poisonous action of these split proteins directly on the kidney cells. Longcope has gone a long way to show that. I believe that it is by no means uncommon to find kidney changes in long continued tuberculosis. Dr. Wadsworth mentioned some exceedingly interesting things. We have observed them but do not know how to explain it. We have simply called it delayed action. In injecting the protein poison into guinea-pigs, even intravenously, we sometimes find that the guinea-pig will have marked convulsions immediately afterward, but will recover from these, and be up on its feet and apparently perfectly normal for one or more hours, and then go into convulsions again and die. I do not know where the poison comes from or what the explanation of it is.

I have very definite ideas about gastric and duodenal ulcer. I think it is a physiologic law that when a poison is introduced into the blood, or into the system, Nature makes an attempt to eliminate that poison either through the kidneys, through the intestines, through the skin or possibly through the lungs. Many years ago I found beautiful ulcers in the stomach in a case of arsenical poisoning. Some of the arsenic was undissolved, and I thought that undissolved arsenic had corroded the mucous membrane of the stomach and led to this ulceration. I looked up the subject, and found that in 1750 a man by the name of Spoegel had observed that duodenal and stomach ulceration was likely to follow the application of arsenic to wounds. I made some experiments, although I never published them. I tried to induce arsenic ulceration in rabbits by feeding arsenic and by giving them arsenic subcutaneously and intravenously. I got better and more constant results in the subcutaneous and intravenous injection of arsenic in the production of stomach and duodenal ulcers than I did by feeding. I believe that ulceration in the stomach and intestine is due to the elimination of the poison from the system into the alimentary canal. I have made a great many experiments in injecting egg white into the ear vein of a rabbit and finding it in the alimentary canal.

There is no question but what the protein poisons and various other poisons are eliminated into the alimentary canal.

Dr. Crane asks me whether I have done anything with the part of the alcoholic mixture that is not soluble in water. I have not. Dr. Gay asked if I had done anything in transferring this sensitization to other animals by means of serum. I have not.

A STUDY OF DIARRHEAS IN BOSTON FOR 1915 *

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It was proposed early in 1915 that investigators from several parts of the country should make a simultaneous study of the diarrheas in their own locality, and that these findings would be compared, and perhaps some common valuable essentials exposed. This paper concerns the study of diarrheas in Boston. It is hoped that some of the following statistics are of sufficient value to have made the task worth while. In order to make these findings as uniform and useful as possible, I used all the outpatient department cases of the Children's Hospital for the whole year 1915. I did not start out to prove anything. No experiments were carried out for this paper. Every record was examined personally every day at the close of the clinic. In this way only rarely were cases of diarrhea missed. At the end of the year all the records of the diarrhea cases were placed together and used for this investigation. By grouping them in different ways, an attempt was made only to find what they offered as matter for thought.

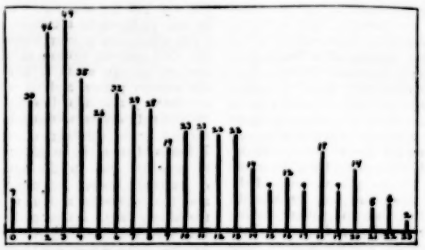

Chart 1.—Number of cases of the diarrheas for each month of age up to 2 years.

Not only were the infectious diarrheas and the sick diarrheas included, but every case that had frequent loose stools. Five or more stools a day was always called diarrhea. Continued loose stools when less frequent were also considered as diarrhea. Many of them occurred and were relieved by home treatment. Many were obviously secondary to some other disturbance or medication. Several were of very short duration. All these types have been included.

Over 14,000 visits by patients were made to the medical outpatient department during the year. Of these, about 3,500 were new cases; 588 patients, new and old, had diarrhea; a few of these were recurrences.

The hospital is located in Boston proper near Brookline. Over one third of the patients come from the Roxbury and Dorchester districts, which are from 3 to 7 miles distant. Not 5 per cent. are within walking distance. More than 75 per cent. have to change cars twice and spend more than an hour in getting to the hospital. About 20 per cent. come from beyond the 5-cent fare limit. Two years ago I located 600 consecutive new cases on a mounted map of Boston. It showed how scattered the cases were all over the whole territory. It proved that it was a Greater Boston clinic, and not a neighborhood one. The clinic is not representative of the poorest and most ignorant classes. The great distance forbids it. The greater proportion can pay any reasonable amount for milk and medicine. A milk fund, supported by private philanthropies and distributed by the social service department, helps or fully pays for the milk of the very needy while the child is ill.

Boston, of course, is very cosmopolitan. It would be difficult to determine from the records, however, just which nationality bore the honor of numbers in the clinic. As an estimate I should think that about 70 per cent. of the mothers were foreign born.

The outpatient records as a whole are complete as to history, physical examination and treatment. In not a few instances, details that I have attempted to study in the histories were missing. In other cases the facts stated were so indefinite that they could not be used. This accounts for what seem to be errors in arithmetic in totaling or proportioning the various statistics. In many cases, the patient saw a different doctor at each visit. This complicated matters as to diagnosis and treatment. It must be understood that the findings in this investigation are conclusions for Boston alone. They are not expected to hold for other localities where the premises are apt to be very different.

The outpatient records do not mention the milk supply. Boston is largely supplied by the big milk dealers. Most all of this milk is pasteurized. As the treatment of milk is fully as important after it has been left on the back door step as before, I have considered the milk question as too big and outside the scope of this paper. It is a matter of common knowledge that when the cows go out to pasture in the spring, their milk often has a laxative effect on the babies. The same condition may possibly hold throughout the summer and have some influence, although secondary, on the prevalence of the diarrheas during that season. Household cleanliness, good nursing, the prevalence of flies, etc., all require house to house investigation. The study of these conditions would also have to be controlled by a similar study of households in which there had been no diarrhea. I have not touched this problem for the present.

Of the whole series of cases, 56 per cent. of the diarrheas developed before admission of the patients to the outpatient department. Forty-four per cent. developed after they had been seen in the clinic.

Geographic Distribution.—The geographic distribution of the diarrhea cases shows no difference from that of the entire clinic. For example, Roxbury furnished 23.64 per cent. of all the outpatient cases for the six months from April to September, 1915; it also furnished 21.47 per cent. of all the diarrheas. Dorchester's share of the clinic was 11.37 per cent.,

* From the Outpatient Department of the Children's Hospital, Boston.

* Read before the Section on Diseases of Children at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

while the diarrheas were 13.42 per cent. The figures for Cambridge, 4 miles off, are 7.04 and 7.38 per cent. Those of Charlestown, 7 miles away, and a rather poor section, are 3.48 and 3.19 per cent. Table 1 shows the number of new patients for six months of the year from April to September, 1915, coming from several sections of Greater Boston. It also shows what proportion in per cent. each section represents of the entire clinic. Parallel with this is given the number and percentage of all the diarrhea cases for the entire year. The difference in the two figures was never more than 2.17 per cent. (Roxbury) in all of the twenty-six different districts represented. It is astonishing how parallel they run even in the suburbs over 10 miles distant from the hospital.

The geographic distribution of the infectious diarrheas, of the patients who died, and of those sick enough for ward treatment did not differ materially from the foregoing figures.

Sex.—Fifty-six per cent. of all the patients were males. It is of interest to note how this proportion holds for the different groups arranged according to age (Table 2).

Weight.—Over 80 per cent. of all the patients were underweight at the onset of the diarrhea, or at least when they were first seen for treatment. The curve of their weights was compared to a similar curve of normal weights which I incorporated in a recent study of weights and measures in the same clinic a year before. The curve of weights of the diarrhea cases almost always ran well below the normal curve except in an occasional instance. This difference in weight is so marked and so frequent that it cannot be accidental, and was more than could be accounted for by the diarrhea itself. It seems that the diarrhea is more apt to occur in those children who are underweight.

Birth Weight.—As the birth weight is so often a rough guess — and a high guess — nothing can be learned as to comparison with the normal birth weight. The average birth weight for boys in the series was 8 pounds; the average for the girls was 7 pounds, 9 ounces. These figures show only the tendency of doctors and attendants to guess too high on the weight unless it is a tiny baby, when the guess weight is diminished to make the baby seem still more of a curiosity.

There were fifty-five patients whose birth weight was reported as less than 6 pounds. Of these, twenty-one were over 1 year of age. There were thirty-four patients under 1 year old who weighed less than 6 pounds at birth. Of these, 11.7 per cent. (four patients) died. This mortality is almost twice as large as the total mortality for the same age in this series. It is evident that the prognosis is worse for diarrheas developing in babies who were born much underweight or premature, as some must have been.

Age.—Three hundred and forty-seven cases occurred in children under 1 year of age, 143 in children between 1 and 2 years, and ninety-six in children between 2 and 12 years.

Chart 1 shows the number of cases that occurred in each month of the first two years. The largest number of diarrheas developed in babies from 2 to 4 months old, over 37 per cent. of the first year's occurring then. More occurred during the third month of age than any other. As the age increases, the incidence of diarrhea decreases, very few appearing for treatment after the age of 3 years.

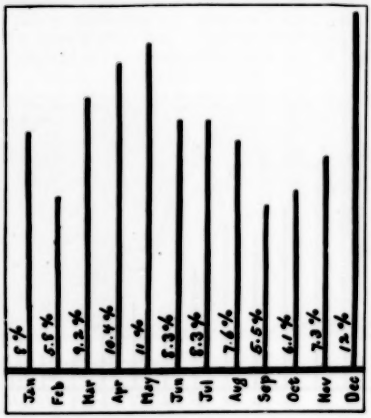

Chart 2.—Percentage weaned in each month of the year.

Relation to Weaning.—There were 325 babies under 2 years old who had been entirely weaned from the breast. Chart 2 shows the percentage weaned in each month; 42.6 per cent. were weaned in March, April, May and December. Only 21.4 per cent. were weaned from July to September, the diarrhea months. It seems that weaning in the spring is somewhat closely related to diarrhea in the summer. December is an important month also. In many of the earlier diarrheas of the year the patients were weaned then. I can account for this only by the incidence of Thanksgiving and Christmas, when the mother and baby are apt to eat objectionable food and thus hasten an indigestion and weaning. Lack of exercise on account of the cold weather may also be partly responsible. There seems to be a close relation between the time of weaning and the onset of the diarrhea. The more recent the weaning, the more apt the diarrhea. Chart 3 shows the percentage of all the babies under 1 year for each month elapsed since weaning. It shows that 25 per cent. of all the babies under 1 year were still nursing, wholly or partly. It also shows that half of those wholly weaned had their diarrheas within three months of the weaning.

Duration of Nursing.—It has been stated above that 75 per cent. of the babies under a year were off the breast entirely. These 331 babies had been nursed an average of only ten weeks. The average nursing period of those that died was six weeks, and of those

TABLE 1.—GEOGRAPHIC DISTRIBUTION

District	General Clinic		Diarrheas	
	Number	Per Cent.	Number	Per Cent.
Roxbury	453	23.64	128	21.47
Dorchester	218	11.37	80	13.42
City	201	10.49	55	9.22
Cambridge	135	7.04	44	7.38
Somerville	110	5.74	39	6.54
East Boston	90	4.69	32	5.37
Charlestown	67	3.48	19	3.19
Brookline	43	2.24	20	3.35
South Boston	42	2.19	16	2.69
Brighton	37	1.93	15	2.51
Malden	36	1.87	9	1.51
Revere	28	1.46	5	0.84
Medford	20	1.04	4	0.67
Winthrop	11	0.57	3	0.50
Beachmont	10	0.52	2	0.33
Quincy	9	0.46	3	0.50
Hyde Park	7	0.36	3	0.50
Others	289	70.86	119	19.93

sick enough to be admitted to a hospital, also six weeks. The average duration of nursing for the babies from 1 to 2 years of age was eight and one-third months; of those who died at that age, the duration averaged six and one-third months; of those sick enough to be admitted to a hospital, it was seven and

TABLE 2.—SEX OF DIFFERENT GROUPS

Groups	Sex	Per Cent.
Babies under 1 year	Boys	56.5
Children from 1 to 2 years	Boys	56.0
Children from 2 to 12 years	Boys	53.25

one-half months. The average duration of nursing of the cases diagnosed as infectious diarrhea was longer than the average for all the diarrhea cases for both the younger and older babies.

Seasonal Occurrence.—The largest numbers of all the diarrhea cases occurred in July, August and September — more in August than in the other two. The first week in August contained more than any other week of the year.

Relation to Temperature and Humidity. — Certainly temperature and humidity must play a great part in this seasonal occurrence. For these deductions I have used the highest daily temperature, the average humidity taken at 8 a. m. and 8 p. m., and the absolute humidity, reckoned from the temperature and humidity. The absolute humidity represents the weight in grains of the moisture in a cubic foot of atmosphere. It varies more with the temperature than with the humidity, that is, air can hold far more moisture on a hot clear day than on a cool day even when it is raining. I have plotted curves of the daily incidence of the diarrheas, together with that of the temperature, humidity and absolute humidity for each day. There were also made similar curves for the weekly and monthly averages. The daily chart was too irregular for much deduction. Chart 4 shows the weekly averages. The curves are more regular. Each month was divided into four parts, some of seven and some of eight days each. It shows how the temperature rose to above 60 and remained so in the middle of April. It rose to above 73 and remained above that point early in June. It rose above 81 twice — in the middle of August, and in the middle of September. It fell off rather abruptly toward the end of September, and did not rise again. The diarrhea curve reached its highest point earlier in the season than the highest temperatures were recorded. The humidity curve was very irregular because of its rise on overcast days. Nevertheless it was highest early in August at the same point that marks the height of the diarrhea curve. The two curves reach their maximum points fairly well together. On the whole, the important points to notice in this comparison are that the diarrhea curve reached its maximum one month after beginning to rise, while the temperature and humidity were four months in rising to the same point. It seems as if it required a long siege of temperature and humidity to start things going. Then there was a storm of diarrhea which subsided much slower than it began. Throughout the year there are marked rises of temperature or humidity. These were never attended by a shower of diarrheas. This point is well shown by the sharp rises of temperature in August and September. These rises were record breakers; but there was no accompanying rise in the number of diarrheas.

The humidity in January and early February was very high, but there were very few diarrheas. Chart 5 shows the monthly averages. It is seen that the temperature, humidity and absolute humidity are all highest in July. The diarrhea curve reached its maximum in August. It shows that while the height of temperature, humidity and absolute humidity is being maintained for a few weeks, the numbers of diarrheas rapidly increase, and that the numbers rapidly decrease just as soon as the temperature and humidity begin to abate. We may readily deduce from these two charts that the incidence of the diarrheas depends more on the absolute humidity than on any other one factor. The diarrhea curve conforms most closely to that of the absolute humidity in both instances.

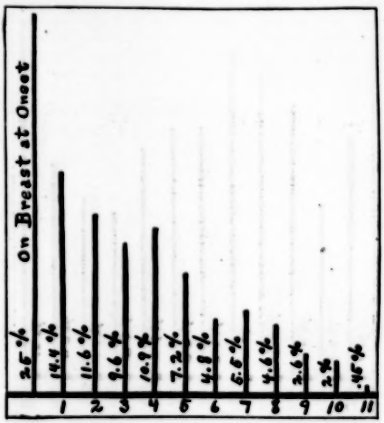

Chart 3.—Percentage developing for each month elapsed since weaning in babies under 1 year of age.

Special Kinds of Cases Affected by the Summer Conditions. — Of all the cases of diarrhea, 64.6 per cent. had their onset in July, August and September. Several groups of cases influenced this high proportion more than others. Each will be discussed in turn, but this seems a fitting place to at least mention them. Every baby over the age of 1 year that was still wholly or partly on the breast had its diarrhea from July to September. During these months started the diarrheas of 75 per cent. of all those that died, had infectious diarrhea, or were sick enough to be admitted into a hospital. Ninety per cent. of the bloody diarrheas occurred then. Seventy-five per cent. of the diarrheas in the older children

TABLE 3.—TYPES OF BOTTLE FEEDINGS ON WHICH DIARRHEAS DEVELOPED IN BABIES UNDER ONE YEAR OLD

Type	Number	Per Cent.
Good formulas	80	28.8
Maltose formulas	67	24.2
Sucrose formulas	27	9.7
High starch formula	22	7.9
Milk and water dilutions	22	7.9
High lactose formulas	18	6.5
High fat formulas	14	5.0
Injurious extras	11	3.9
Mead's Dextrimaltose formulas	10	3.6
Fat-free milk	4	1.4
Buttermilk	2	0.7

complicating or complicated by some digestive disease occurred from July to September. About 77 per cent. of the diarrheas occurring in children who had been fed proprietary foods occurred from July to September.

Relation to Diet.—Of the infants under 1 year of age, fifty-two (14 per cent.) were entirely breast-fed when the diarrhea began; fifty-five (15 per cent.) were getting part breast and part bottle or other food; 261 (71 per cent.) were entirely weaned, taking the bottle with or without other extras. The babies fed on the bottle were more apt to have their diarrheas from July to September than those still nursing; 65 per cent. of the bottle babies, and 40 per cent. of the nursing babies occurring at that time. Fifty-eight per cent. of those on mixed feeding happened from July to September. Seven babies over a year were still wholly breast-fed, and six were partly breast-fed. Every one of these thirteen cases had their diarrhea from July to September. It was found that twenty-two children had been kept on the breast for over twelve months before weaning. Of the diarrheas of these children, 86.5 per cent. also occurred from July to September.

At the onset of the diarrhea, the records show that 91 per cent. of the children over 2 years of age were on good ordinary diets, with no special food mentioned to which the diarrhea could be laid. Of the babies between the ages of 1 and 2 years, 65 per cent. were on obviously faultless diets. Of the babies under a year of age, excluding the wholly breast-fed, only 29 per cent. were on a faultless formula. All the other infants were being fed some element in excess which proved to be laxative on fermentation. Table 3 is a list of the various foods on which babies under 1 year of age were being fed when the diarrhea started. Of special note is the fact that 24 per cent. were getting some form of maltose, including Mellin's Food. Ten per cent. were getting sucrose alone or in condensed milk. Eight per cent. were being overfed on the starchy proprietary foods. Only 5 per cent. were on mixtures too high in fat, and only 3.6 per cent. on Mead's dextrimaltose—a food which is being used a great deal in our formulas.

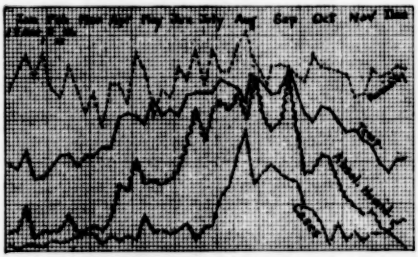

Chart 4.—Average temperature, humidity, absolute humidity and number of diarrheas for each week of the year.

Proprietary Foods.—One third of all the infants having diarrhea had been getting one or more of the proprietary foods when the diarrhea started, or not many days previously. I do not include as proprietary foods lactose, Mead's dextrimaltose, Brooks' or Robinson's barley, sucrose, or malt soups. Seventy-four per cent. of these diarrheas occurred from July to September, and 80 per cent. of the older children who had ever been fed one of the proprietary foods had their diarrheas during these months. The babies fed on proprietary foods were more prone to excoriations. The figures of this series show that 18 per cent. more babies fed on proprietary foods than on all other sorts of feeding died, or left the clinic unrelieved.

Carbohydrate Fermentation.—Of all the babies under 1 year of age getting the bottle wholly or partly, 57 per cent. of their diarrheas were due directly to carbohydrate fermentation. This was proved in every case by either the therapeutic test of relief with less sugar or starch or by an unmistakable history of carbohydrate overfeeding with the usual accompanying signs and symptoms. Only 19 per cent. of the babies between 1 and 2 years could be proved to have carbohydrate indigestion, and only 5 per cent. of those between 2 and 12 years. These cases did not appear in July, August and September to any greater extent than the average for all the diarrheas.

Excoriated Buttocks.—About 29 per cent. of all the babies under 1 year of age were excoriated. Of those fed on the breast alone, 15 per cent. were excoriated. Of those partly breast-fed, 19 per cent., and of those entirely on the bottle, 34 per cent. were excoriated. These cases were not more frequent from July to September than the average diarrhea cases. Forty-one per cent. of those babies fed on proprietary foods were excoriated.

Coexisting Disturbances.—Eighty per cent. of all the babies under a year of age had some other ailment at the time of the diarrhea, or within a short period just previous to the onset. Among the most frequent in order were eczema, otitis, indigestions, malnutrition, bronchitis, scurvy, tuberculosis and common colds. Forty-two per cent. of these complications were dis-

TABLE 4.—TREATMENT OF THE BABIES UNDER ONE YEAR OLD WITH ITS RESULTS

Type	Relieved		Not Relieved		Died		Never Returned		Totals	
	Number	Per Cent.	Number	Per Cent.	Number	Per Cent.	Number	Per Cent.	Number	Per Cent.
Ordinary	88	69.8	10	7.9	2	1.5	26	20.6	126	36.9
Reduced sugar	63	91.3	2	2.9	0	....	4	5.8	69	20.2
No treatment	31	86.1	1	2.7	0	....	4	11.1	36	10.5
Calcium casein	12	50.0	7	29.1	1	4.1	4	16.4	24	6.6
Reduced fat	15	78.9	3	15.7	0	....	1	5.2	19	5.5
Lactose free	13	86.6	0	....	1	6.7	1	6.7	15	4.4
Buttermilk	5	38.4	4	30.7	4	30.7	0	....	13	3.8
Dextrimaltose formulas	6	66.6	0	....	1	11.1	2	22.2	9	2.4
Lactose solution	4	50.0	3	37.5	0	....	1	12.5	8	2.2
Indirect treatment	4	80.0	0	....	1	20.0	0	....	5	1.4
Maltose formulas	1	25.0	3	75.0	0	....	0	....	4	1.1
Varied treatments	0	....	4	100	0	....	0	....	4	1.1
Same formulas boiled	1	33.3	0	....	1	33.3	1	33.3	3	0.8
Reduced starch	2	100	0	....	0	....	0	....	2	0.5
Proprietary food	2	100	0	....	0	....	0	....	2	0.5
Breast milk	0	....	0	....	1	100	0	....	1	0.3
Olive oil mixture	1	100	0	....	0	....	0	....	1	0.3

eases of the digestive tract, excluding diseases of the rectum.

Of the older children, 55 per cent. had coexisting diseases, of which 32 per cent. were digestive disorders. The most frequent of these complications were, in order: the contagious diseases, indigestions, nasopharyngitis, otitis, diseases of malnutrition, pyelonephritis, cerebral affections, constipation, bronchitis and tuberculosis. About every imaginable disease was included. Of the diarrheas in the children over 1 year of age that were complicated with digestive disorders, 75.5 per cent. occurred from July to September.

TABLE 5.—TREATMENT OF THE INFECTIOUS DIARRHEAS IN CHILDREN OVER ONE YEAR OLD, WITH RESULTS

Type	Relieved	Not Relieved	Died	Not Returned	Totals
Lactose solution	9	0	1	3	13
Buttermilk	9	1	0	2	12
Sent to hospitals	0	0	0	4	4
Skimmed milk	3	0	0	0	3
Barley water	0	0	0	1	1
Reduced sugar	1	0	0	0	1
Carbohydrate foods	1	0	0	0	1
Bismuth	0	0	0	1	1

Blood.—In forty-nine cases, blood in greater or lesser amount was noted in the stools. Of these, eighteen were in infants under 1 year, and thirty-one in children over 1 year. Cases in which blood was noticed were not always considered as infectious diarrheas. On the other hand, many cases were classed as infectious diarrheas that did not show blood in the stools.

Of the babies under a year, 17 per cent. of those showing blood in the stools were breast-fed entirely, 22 per cent. on mixed feedings, and 61 per cent. on the bottle alone. All but one of these eighteen cases occurred in July, August or September. Of the older children, 83 per cent. occurred during these months.

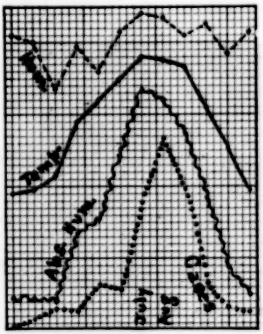

Chart 5.—Monthly averages for temperature, humidity, absolute humidity and diarrheas.

Infectious Diarrheas.—The diagnosis of infectious diarrhea seems to have been rather an elastic one. This can easily be explained, as many of the cases were seen but once, and a fair understanding of the case could not be obtained. On the whole, the case was apt to be called infectious diarrhea if the patient was very sick with a fever, and loose stools containing blood and pus. Many were called infectious without blood. The sick children with gas bacilli found in the stools were also called infectious. There were sixty cases in the whole series diagnosed as infectious diarrhea. Twenty-five were under a year old, twenty-two between 1 and 2 years, and thirteen patients were over 2 years of age. Seventy-eight per cent. of all the infectious diarrheas occurred from July to September. The geographic distribution of the infectious diarrheas was not remarkable.

Gas Bacillus.—A great many of the stools were planted in dextrimaltose solution for the growth of the gas bacillus. Many of these tests were not recorded. Several were placed on the records as positive or negative. The treatment and outcome of these are stated below.

Treatment.—The statistics on treatment are very complicated, owing to the large variety of causes and complications, and to the large number of doctors with their more or less varied ideas of feeding and general treatment. A majority of the patients received a cleaning out, followed by water or barley water, and then a weak milk mixture. Many did not need an initial catharsis, but were given suitable formulas or diets immediately. Table 4 shows in a very rough way the number of babies under a year old receiving the various kinds of treatment. Not a few cases received more than one kind of treatment; in this event they were all recorded. The table shows the result of the treatment as relieved, not relieved or died. If the patient did not appear at the clinic again, and could not be followed, it is included under the column marked "Never Returned."

It is to be noted that 36.9 per cent. of all the cases received the simple cleansing treatment with slight or no change in the food. Ten per cent. received no treatment for the diarrhea at all; 20.2 per cent. received mixtures with a reduction of the carbohydrate element; this includes the cases in which maltose was omitted from the formula; 4.4 per cent. were put on mixtures extremely low in lactose by using 32 per cent. cream and precipitated casein. This gets the sugar below 0.5 per cent. This treatment is called "lactose-free" in the table. One doctor used precipitated casein with skimmed milk or diluted whole milk. This treatment is called "calcium casein" in the table. "Olive oil" refers to homogenized mixture of olive oil, skimmed milk, water and sugar. "Lactose solution" refers to a 5 or 6 per cent. solution of lactose in water with or without a little barley.

The important points to note in Table 4 are that 91 per cent. of the babies treated with lower sugar formulas were relieved immediately; 86.5 per cent. of those getting the "lactose-free" formulas get better immediately. Only 38 per cent. of those getting buttermilk were relieved; 30 per cent. died, and 30 per cent. were lost from the clinic. Only 50 per cent. of those getting lactose solution were relieved. Fifteen per cent. of those getting a reduced fat percentage were not relieved. Three out of the four that were put on mixtures containing maltose were not relieved, necessitating an omission of the maltose finally.

TABLE 6.—TREATMENT OF INFECTIOUS DIARRHEAS IN BABIES UNDER ONE YEAR OLD, WITH RESULTS

Type	Relieved	Not Relieved	Died	Not Returned	Totals
Buttermilk	4	3	3	0	10
Fat-free diet	1	1	2	0	4
Lactose solution	3	1	0	0	4
Milk and water dilution	2	0	0	0	2
Calcium casein	0	0	1	0	1
Dextrimaltose formula	0	0	1	0	1

All the varieties of treatment for children over 1 year of age were very successful. Only three died, and seven were unrelieved out of 203 cases. Just 25

per cent. never returned and could not be followed.

The most successful treatment for the children over a year and a half old was a cleaning out with castor oil followed by barley water for from twelve to eighteen hours. The child then received boiled skimmed milk, barley jelly, farina, toast and toasted crackers. Potato, butter, fruits, etc., were omitted for at least a week.

Relation of Gas Bacillus to Treatment.—The test for the gas bacillus was reported positive in ten cases in children over 1 year old. Six received buttermilk. Four received ordinary mixtures. The test was reported negative in nineteen cases. Two were given buttermilk, and seventeen ordinary mixtures. All did well. Of the babies under 1 year of age, there were also ten positive reports for the gas bacillus. Three were fed ordinary formulas and did well. Seven were given buttermilk. Of these, two died, one was not relieved, and four did well.

The varieties and results of treatment of the infectious diarrhea cases in children over 1 year is shown in Table 5. "Hospital" refers to four cases that were sent to some hospital but did not appear there, and were lost altogether. All forms of treatment worked well. There was only one death, that patient being given lactose solution. Table 6 shows the variety and results of treatment of the infectious diarrhea cases in children under 1 year of age. Ten of these received buttermilk, of whom three died and three were not relieved. Poor results were obtained from the use of skimmed milk.

Mortality, Etc.—Of all the patients under 1 year of age, 6.9 per cent. died; 11.2 per cent. were not relieved. The mortality of the infectious diarrheas for this age was 36 per cent.; for the noninfectious, 4.6 per cent.

Of all the patients between the ages of 1 and 2 years, 2.1 per cent. died, and 2.8 per cent. were not relieved. The mortality for the infectious diarrheas for this age was zero; for the noninfectious, 2.4 per cent.

Of all the patients between the ages of 2 and 12 years, 1 per cent died and 1 per cent. were not relieved. The mortality of the infectious diarrheas for this age was 7.7 per cent.; for the noninfectious, zero.

CONCLUSIONS

It would be very difficult to prove that any one or two factors were wholly responsible for the diarrheas in children. From the foregoing statistics, however, many helpful inferences may be drawn. No part of Boston is freer from the diarrheas than another. The etiologic factors reach everywhere. Children not up to the physical standard and those born congenitally weak are very susceptible. Babies between the ages of 2 and 4 months, especially those that have been recently weaned, seem to be marked for this disease. Weaning in the spring is closely related to diarrhea in the summer. It is regrettable that so many babies have to be weaned before they are 3 months old, as this seems directly responsible for much of the trouble. Nursing for over twelve months is also pernicious, as it seems from these statistics to do more harm than good. The seasonal occurrence from July to September depends more on the absolute humidity than on any other one factor. The infectious diarrheas occurred especially in the summer months, as did the diarrheas of those that had been nursed over a year, and those that had been fed on the proprietary foods. The proprietary foods and malt soups were directly responsible for a great deal of the trouble. Carbohydrate fermentation, excoriated buttocks and the diarrheas were always closely associated. Children with other diseases and ailments are the most susceptible. The most favorable form of treatment for the infants on the bottle was a catharsis, a temporary weak food, and then a formula low in sugar; that for older children, barley jelly, boiled skimmed milk, toast and toasted crackers.

On the whole, as next important factors to absolute humidity in the etiology of the diarrheas, carbohydrate fermentation and a susceptible physical condition stand out most prominently.

272 Newbury Street.

AN ANALYSIS OF THE MORTALITY FOR 1915 IN THE INFANT WELFARE STATIONS OF CHICAGO*

H. F. HELMHOLZ, M.D.
AND
WALTER HOFFMANN, M.D.
CHICAGO

The Infant Welfare Society of Chicago operated twenty-one stations during the year 1915 in the most congested districts of the city. During the year, the organization cared for 9,313 babies, representing about one sixth of the babies born in Chicago during 1915; of these 9,313 babies, 320 died, making the death rate 3.4 per cent. For various reasons twenty of the cases were not available, so that only 300 of the cases could be tabulated. As we have no complete birth registration in Chicago, it is very difficult to determine how effective our work is in reducing infant mortality. We have undertaken to analyze our results from a

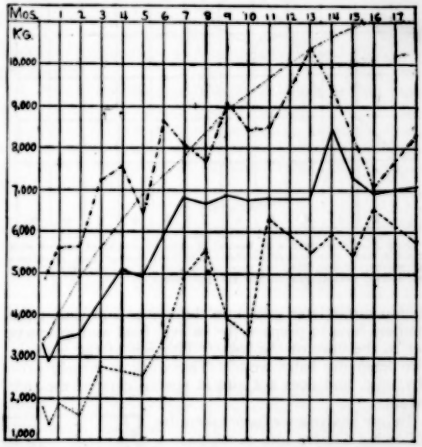

Chart 1.—Admission weight: solid line, average weight at entrance; dotted line, normal curve; broken line, minimum weight at entrance; line of dots and dashes, maximum weight at entrance.

* From the Otho S. A. Sprague Memorial Institute Laboratory of the Children's Memorial Hospital.
* Read before the Section on Diseases of Children at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

number of angles, in order to determine how our work might be improved to save even a larger percentage of those infants entrusted to our care.

Just a word in explanation of the type of work done in an infant welfare station. Two conferences are held each week for mothers. At these conferences the infants are weighed and examined and their mothers instructed as to their feeding and general care. The

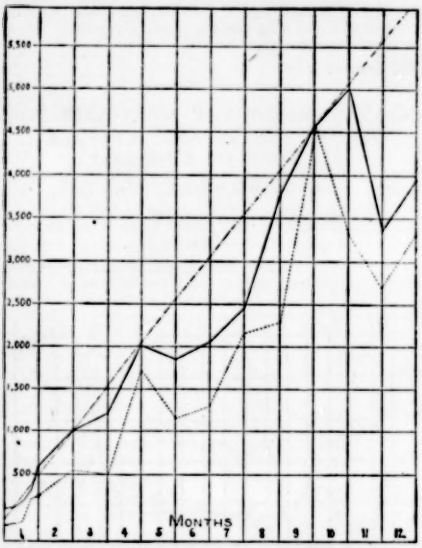

Chart 2.—Comparison with normal of gain of weight of infants who attended more than one conference: solid line, average gain of infants per month; broken line, net gain of infants per month; line of dots and dashes, normal gain of 525 gm. per month.

station nurse later goes into the homes and shows the mothers how to prepare the babies' food and instructs her in the care of the baby. The aim of the work is "To keep the baby well." The work is largely prophylactic, and does not aim at special care of the sick infant.

In our analysis we have taken the following factors into account:

1. Nationality.
2. Wages.
3. Condition on admission: (*a*) age; (*b*) feeding.
4. Conferences: (*a*) attendance; (*b*) greatest gain while at conference; (*c*) losses in weight; (*d*) interval until death.
5. Deaths: (*a*) feeding; (*b*) time of year; (*c*) causes.

1. Nationality: Of the 300 babies registered, only fifty-four were born of American parents. The remaining 246 were distributed among fifteen different nationalities, of which the two most prominent were the Poles with 127 deaths and the Italians with forty-five. At this time we have no figures available as to how large a percentage of our total number of patients are Polish, so we cannot say definitely that this is excessive, though it would appear so. It can be said, however, that our worst hygienic conditions are found in districts inhabited largely by Poles.

2. Wages: In ninety of the 300 cases, the families had no regular income, the expenses being largely met by charity. In ninety-seven families the regular income per week was $10 or less, and in eighty-six families between $10 and $15 per week. In only twenty-seven families was the income over $15 per week. In the matter of wages as in nationality we need a large control series of families in which the wages were equally low and the babies lived. Low wages are unquestionably an important factor in the high death rate of the slums.

3. Admission: The youngest child brought to a station was 8 days old. About one half were admitted before they were 4 months old. Fifty-four were admitted in the first month, ninety-two in the second and third, and sixty-nine from the fourth to the seventh, and forty-five from 8 to 12 months of age. The most interesting points in connection with the admission weight are best seen in Chart 1. During the early months of life the babies vary considerably in their

FEEDING OF INFANTS

	Breast	Allaitement Mixte	Bottle	Mixed Diet
On admission....	112	57	107	24
At last conference	49	76	113	62

admission weight, some are admitted above the normal and some very much below the normal; after the sixth month, however, there were no infants admitted above the normal in weight. From the seventh month on the admission weight remains practically stationary, even when the children are over 1 year of age. As a probable explanation of this fact we would suggest the weaning of children at about the sixth month with resultant disturbance when feeding is not supervised.

The other point of interest is the relative number of infants on the breast alone, on allaitement mixte, on the bottle and on mixed diet.

Allowing for those that were on allaitement mixte at their last conference, only forty-four were taken from the breast. The number on the bottle remained practically the same. The ratio of bottle fed to breast fed is 6:1. This figure may be a trifle high because our figures for type of feeding are for the last conference attended and not at the time of death.

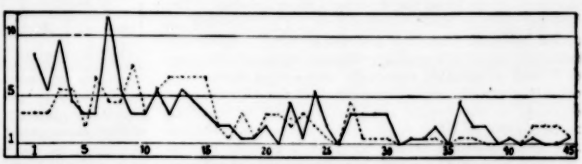

Chart 3.—Time after the last conference that infants died: solid line, number of deaths per day in days after last conference of patients attending from one to four conferences; broken line, number of deaths per day after last conference of patients attending more than four conferences.

4. Conferences: Fifty-four of the 300 attended only one conference; 151 attended only one to four conferences. The attendance of those that attended more than one conference is extremely good for the first three weeks, during which time many mothers attended two conferences a week. As the condition of the baby improved, their attendance is not so good, and many

return only when the baby again becomes sick. In order to compare the gain in weight of these infants with the normal, we have prepared Chart 2 in which the normal gain per month is figured at 525 gm. The solid line indicates the gain in weight per month up to the time when the infant reached its greatest weight, the broken line the net gain per month of the infant when its last weight was taken. It is surprising to see how nearly parallel the normal curve and the curve of these infants run. In other words, we are able to make these babies gain practically normally only to lose them with acute disturbances. Of the 254 that attended more than one conference, 68 had no losses in weight, 81 had one loss, 36 two losses, and 62 three or more losses.

Chart 3, indicating the time in days after the last conference that the infants died, was somewhat of a surprise to us. We had assumed that our greatest

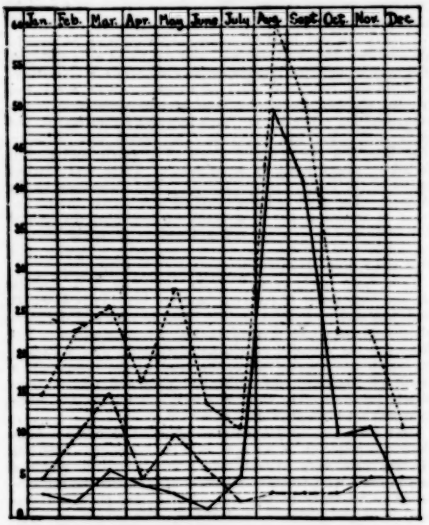

Chart 4.—Deaths by months: solid line, number of deaths due to gastro-intestinal diseases; line of dots and dashes, number of deaths due to respiratory diseases; broken line, total deaths.

number of deaths was among the group of patients who had neglected to come to conferences. Just exactly one half of the infants died within two weeks of the last conference attended. Of those that attended only one to four conferences, a very much larger percentage died in the first two weeks. The general attendance was good during the first four months after registration, after which it fell off very considerably.

5. Deaths: Forty-nine of the infants were breast fed, 251 artificially fed. In Chart 4 we have charted the deaths by months. In addition we have subdivided the deaths into respiratory, gastro-intestinal and miscellaneous. The first two we have charted by months also. As a rule the summer peak of mortality is highest during July and August. The summer of 1915 was exceptional, however, inasmuch as the deaths for July were only eleven, as few deaths as December and less than any other month in the year. In August, however, there was a very marked increase, the number of deaths jumping to sixty, one fifth of the total deaths of the year. September, which usually shows a marked diminution in the mortality, had fifty-one deaths, while October is again down to the average with twenty-three. These figures are especially interesting when taken in connection with the dates of admission of the ninety-one patients who died of gastro-intestinal disease during August and September. Of these ninety-one cases, twenty-two were admitted in July, twenty-six in August and six in September, so that 60 per cent. of the patients came to us sick, and so do not represent babies that we had been caring for for a long period of time, a group of patients whom we must reach earlier if we are to save them. Charting the respiratory and gastro-intestinal deaths separately, it is evident how the total deaths follow the respiratory deaths in the winter and the gastro-intestinal in the summer.

SUMMARY

1. Ninety-three per cent. of the deaths were in families with an income of $15 or less per week.

2. Up to 6 months of age the average admission weight is approximately normal, after that it remains practically stationary.

3. The average monthly gain of the babies while attending conferences was practically normal (525 gm. per month).

4. About one half of the babies died within two weeks of the last conferences attended.

5. About 60 per cent. of the deaths from the summer gastro-intestinal disturbances were in children who were admitted to the stations during July, August and September.

CHRONIC DIGESTIVE DISORDERS IN CHILDREN

WITH ROENTGEN-RAY FINDINGS *

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Chronic digestive disorders in children are usually looked on as being due to bacterial infection, food intoxication, perversion of functions, or chronic appendicitis. That some of these conditions may at times be dependent on mechanical agencies operating in the digestive tract has received but little thought.

By chronic disturbances in children we refer to those characterized by one or more of the following symptoms: repeated attacks of acute indigestion with vomiting; abdominal distention, transient or habitual; repeated attacks of intestinal colic; habitually loose evacuations; extreme constipation, or periodic fever with intestinal association.

Children with persistent digestive disorders are habitually irritable, sleep poorly, and nearly all show malnutrition of varying degrees. In the vast majority of cases there is a secondary anemia. Many of these patients respond to properly directed treatment. There

* Read before the Section on Diseases of Children at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

remain a few, however, who are difficult to cure, and these come to the hands of the specialist.

We found that examination of the gastric contents, the blood, the urine and the stools did not supply the necessary information. It occurred to us that a Roentgen-ray study of the digestive tract might be of assistance, that mechanical defects might be at the bottom of the persistently disturbed physiologic and chemical processes which resisted treatment in some cases that was successful in others. That we have been aided in a manner far beyond our expectations will be brought out in the detailed report of cases.

Roentgen-ray examination of the digestive tract in babies and children has opened up an entirely new chapter in medicine. Valuable as the rays have proved themselves to be in the diagnosis of digestive troubles in adults, they have become of inestimable value in the determination of obscure diseases of the infant.

The exact size, shape and position of the stomach can be accurately determined. The presence and amount of air or gas can be detected and can be readily distinguished from a similar condition in either the small or the large intestine. The process of digestion can be studied, especially with reference to the normal or abnormal time of retention of food in the stomach or intestine. The cause of vomiting may be determined. Congenital deformities, such as pyloric stenosis, together with a determination of its exact degree may be detected. Congenital diseases, such as syphilis, may be discovered.

Intestinal disorders are found in many cases to be dependent on hitherto unsuspected factors, such as abnormal length or size of the intestinal canal, or some part of it, as the sigmoid flexure. Reflex nervous conditions, convulsions, asthmatic attacks, food idiosyncrasies, etc., may be found to have their cause here, and may be cured by appropriate medical or surgical treatment based on the Roentgen-ray disclosures.

The degree and cause of constipation may be determined in a definite manner heretofore impossible. Relaxation of the abdominal viscera may be detected in its incipience and corrected before it has become the disabling condition which it is known to assume in the adult, the treatment of which is one of the most difficult problems presented to the physician or surgeon today.

The problem of the long sigmoid merits most careful consideration from the anatomic, physiologic and medical and surgical points of view. The condition is frequently encountered. It is of congenital nature and does not apparently disappear with the growth of the child. The former view of anatomists and pediatrists that the rest of the colon grows at the expense of the sigmoid flexure is no longer tenable in view of the accumulated evidence brought forward by the Roentgen-ray study of the living anatomy of individual children over a period of months and years. Once a long sigmoid, always a long sigmoid. But when recognized and properly reckoned with and treated, its evils may be greatly mitigated or entirely eradicated.

The recognition of varying degrees of pyloric stenosis in older infants or children is of the greatest aid in treatment. Whether some of these cases are of congenital origin, but not of the degree to demand surgical intervention in infancy, is a problem which we hope to be able to throw some light on in the near future.

CASE REPORTS

Case 1.—A boy, poorly nourished, aged 5½ years, weighing 41½ pounds, was referred to Dr. Bumsted, Newark, N. J. The hemoglobin was 52 per cent., red blood cells 4,640,000, and urine negative. The child had seven convulsions of intestinal origin in the previous three years, and had been habitually constipated, requiring medication every day from birth. He was very irritable and unhappy. Milk had been stopped for one year because it had been thought not to agree with him. The Roentgen ray revealed the sigmoid extending upward almost to the splenic flexure. As a result of treatment in three months he gained 6 pounds, 4 ounces, the constipation was relieved and the disposition was much improved. There was no further trouble, and the boy is well.

Case 2.—A girl, aged 3½ months, weighing 10 pounds, was suffering with malnutrition, extreme colic night and day, and constipation. An enema was required daily. The Roentgen ray revealed hyperperistalsis of stomach. The sigmoid was elongated, passing 1 inch above the umbilicus, and the stomach was distended with gas. The blood and urine were not examined. As a result of treatment the child gained 5 pounds, 14 ounces, in four months. There was no colic, and evacuations were normal.

Case 3.—A girl, aged 9½ years, and weighting 54 pounds, showed hemoglobin 40 per cent., and red blood cells 4,000,000. She was of delicate appearance, had moderate malnutrition, and showed very slow gain in weight. About every two months she had so-called bilious attacks simulating recurrent vomiting. The bowels were habitually constipated, and daily medication was required. The breath was offensive. The Roentgen ray revealed ptosis of stomach, and that it failed to empty itself in seven hours. There was marked ptosis of the transverse colon and marked elongation of the sigmoid. The child had one vomiting attack after the excitement of traveling, but as a result of treatment she gained 7 pounds in ten months, and a blood examination showed hemoglobin 60 per cent., and red blood cells 4,700,000. She required 7 drops of aromatic cascara three times daily.

Case 4.—A girl, aged 9 years, weighing 52½ pounds, showed hemoglobin 60 per cent., and red blood cells 4,700,000. She was suffering from malnutrition, nausea and frequent abdominal pain and discomfort, but not constipation. The Roentgen ray revealed an elongated sigmoid with a loop in the pelvis and another above the crest of the ileum. As a result of treatment, the abdominal pain and nausea completely subsided. The child was well, but the parents failed to report the amount of gain in weight.

Case 5.—A boy, aged 2 years, weighing 14 pounds, 5 ounces, showed hemoglobin 30 per cent., and red blood cells 3,000,000. He was pale, very irritable and poorly nourished and had laryngismus with frequent seizures. The stools showed evidence of tendency to diarrhea. There was persistent distention of the abdomen, and the appetite was poor. The urine showed few pus cells. The Roentgen ray revealed elongated sigmoid markedly dilated and passing 2 inches above the umbilicus. The boy was given two blood transfusions. At first 120 c.c. of mother's blood were given, and four weeks later 200 c.c. were given without improvement in anemia. As a result of treatment in four months, the boy gained 3 pounds, 13 ounces. The hemoglobin was 37 per cent., and red blood cells 2,700,000. The boy's disposition was much improved, and his appetite was very good. An interesting feature in this case was the gain in weight, the cessation of the laryngismus, and the general improvement in strength, nothwithstanding the persistency of a high degree of secondary anemia.

Case 6.—A boy, aged 18½ months, weighing 25 pounds, 2 ounces, showed hemoglobin 38 per cent., and red blood cells 4,400,000. He was well nourished, but had a poor appetite, and suffered with habitual constipation, requiring medication daily. The Roentgen ray revealed the sigmoid loop passing 3½ inches above the umbilicus. The long sigmoid was mostly to the left of the median line. As a result of treatment the boy gained 2 pounds, 10 ounces, in two and a half months. He requires one tablespoonful of liquid petrolatum

daily, and his massage twice a week. His appetite is satisfactory, and the stools are normal.

CASE 7.—A boy, aged 3½ years, weighing 23 pounds, 4 ounces, had hemoglobin 65 per cent., and red blood cells 5,200,000. There was marked malnutrition, as no gain in weight had occurred for six months. There were frequent attacks of diarrhea, and the stools frequently contained mucus. There was marked abdominal distention, and the appetite was indifferent. There were frequent fever periods with temperature from 100 to 104.5, with or without intestinal manifestations. The urine was negative. The Roentgen ray revealed elongated sigmoid passing 2½ inches above the umbilicus and 1 inch above the transverse colon. There was, moreover, some pyloric obstruction. As a result of treatment the boy gained 4 pounds, 6 ounces, in seven months, and there was a complete cessation of fever and diarrhea. The child is well.

CASE 8.—A boy, aged 5 years, weighing 33 pounds, showed hemoglobin 69 per cent., and red blood cells 4,960,000. He had frequent attacks of asthma, severe eczema, persistent distention of the abdomen and habitual constipation, requiring medication daily. Scratch skin test showed positive reaction to barley. The Roentgen ray revealed the sigmoid to be unusually redundant. It passed over to the right side until the shadow merged with that of the cecum, and then to a point 3 cm. above the umbilicus and down again into the pelvis. It was fully three times the normal length. As a result of treatment, the boy gained 2 pounds, 12 ounces, in ten months. He now has asthma very rarely, and is troubled but very slightly by eczema. He required 3 tablespoonfuls of liquid petrolatum daily.

CASE 9.—A boy, aged 5 years, weighing 32 pounds, 4 ounces, with failure to gain weight, showed hemoglobin 50 per cent., and red blood cells 5,300,000. Vomiting attacks occurred about every three months. There was persistent distention of the abdomen, habitual constipation and marked spasm of the anal sphincter. The Roentgen ray revealed elongation and dilation of the sigmoid, with an extra loop far over to the right, so that its shadow touched that of the cecum. As a result of treatment the boy gained 4 pounds, 4 ounces, in eleven months. The vomiting attacks ceased, and the evacuations became normal. The sphincter was stretched under anesthesia.

CASE 10.—A girl, aged 2½ years, weighing 25 pounds, showed hemoglobin 55 per cent., and red blood cells 4,600,000. There was malnutrition. She had three convulsions of gastrointestinal origin in the previous year. There was habitual constipation, and medication or an enema was required daily. The urine showed a moderate amount of acetone. The Roentgen ray revealed an elongated sigmoid passing 2 inches above the umbilicus. When the child was in the prone position the sigmoid passed to the right side as far as the abdominal wall. As a result of treatment she gained 4 pounds in four months, and convulsions ceased. The bowels require one-half teaspoonful of aromatic cascara daily.

CASE 11.—A girl, aged 2 years, weighing 21 pounds, 2 ounces, was poorly nourished. Blood examination showed hemoglobin 50 per cent., and red blood cells 4,200,000. The urine was negative. There had been no gain in weight for one year. The abdomen was markedly distended, and there was constipation requiring daily medication or an enema. The child was habitually irritable. The Roentgen ray revealed reduplication of the sigmoid, passing 2 inches above the umbilicus, across to the left and downward into the pelvis before it joined the descending colon. As a result of treatment the patient's disposition was much improved, and she gained 2 pounds, 12 ounces, in seven months in spite of a very severe attack of pertussis. She required one-half teaspoonful of aromatic cascara daily.

CASE 12.—A boy, aged 10 years, weighing 52 pounds, 12 ounces, showed hemoglobin 52 per cent., and red blood cells 4,000,000. He was thin and pale, and subject to frequent attacks of vomiting (about once a month), with elevation of temperature. There was frequent bronchitis, and the bowels showed a tendency to looseness. The urine showed a slight trace of indican. The Roentgen ray revealed elongated sigmoid, about three times the normal length. There was an obstruction of the pylorus, ptosis of cecum, and gastric retention. As a result of treatment the boy gained 6 pounds, 4 ounces, in six months, the evacuations became normal, and there were no more vomiting attacks. The blood was unchanged.

CASE 13.—A girl, aged 10 years, weighing 63½ pounds, showed hemoglobin 60 per cent., and red blood cells 4,800,000. She was fairly well nourished but subject to persistent urticaria, occasionally asthmatic bronchitis, slight distention of the abdomen, and intermittent abdominal pain. Mucus was present in the stools in considerable amount, but there was no constipation. The Roentgen ray revealed ptosis of the stomach 1½ inches below the umbilicus. The stomach did not empty itself in seven hours. The colon was sluggish. The sigmoid was normal in length. As a result of treatment the girl gained 1¼ pounds in four weeks. The urticaria is much improved, and the evacuations are normal.

CASE 14.—A girl, aged 9 years, weighing 61 pounds, 12 ounces, fairly well nourished, showed hemoglobin 58 per cent., and red blood cells 4,800,000. She had habitual constipation requiring medication or enema daily, and was subject to recurrent vomiting and frequent eczema. She had had two attacks of acute intestinal indigestion in the previous six months, with temperature as high as 105. There were evidences of intestinal obstruction with frequent bowel movements. The Roentgen ray revealed marked elongation of the sigmoid, passing 1 inch above the umbilicus. There was prolapse of the colon at the splenic and hepatic flexures, with ptosis of the stomach. As a result of treatment there were no further intestinal attacks, and the child gained 6 pounds, 4 ounces, in four months.

CASE 15.—A boy, aged 5 years, 9 months, weighing 53 pounds, 4 ounces, well nourished, showed hemoglobin 45 per cent., and the urine negative. There were marked distention of the abdomen and considerable gas in the stomach and intestines. There was loss of weight, 2 pounds in three weeks. Pain was present in the abdomen at frequent intervals, and rarely a day passed without complaint. The Roentgen ray revealed an enormously dilated stomach, emptying very slowly, marked distention of the colon with gas, and a markedly elongated sigmoid, the loop passing to the right as far as the crest of the iliac bone, crossing over to the median line before joining the descending colon. The boy has just come under treatment.

CASE 16.—A boy, aged 2 years, 8 months, weighing 32 pounds, showed hemoglobin 57 per cent., and red blood cells 4,800,000. He was well nourished and the urine was negative. He had so-called bilious attacks, fever and abdominal distention every three to five weeks. There was extreme constipation, requiring an enema every day. The Roentgen ray revealed spasm of the pylorus. There was an elongated sigmoid passing 3 inches above the umbilicus, descending into the pelvis and again ascending several inches before returning to the pelvis. The child lives in a distant city and has been under the care of a local physician. The mother reports the child has not gained in weight but shows great general improvement.

CASE 17.—A boy, aged 11 years, weighing 65 pounds, was thin and showed habitual constipation, requiring medication every day. There were frequent attacks of very severe colic with abdominal distention at the time. The Roentgen ray revealed ptosis of stomach, and sharp angulation of the colon at the hepatic and splenic flexures with ptosis of the transverse colon. As a result of treatment there was no further colic, constipation decreased, requiring only 1 grain cascara three times a day. The Roentgen ray one year later revealed the greater curvature of the stomach ¼ inch above the umbilicus, with the belt on. With the belt off the greater curvature of the stomach was 2 inches below the umbilicus.

CASE 18.—A boy, aged 6½ years, weighing 39 pounds, showed malnutrition, slow gain in weight, and constipation, requiring medication daily. The blood and urine were not examined. The Roentgen ray revealed spastic condition of the colon without undue length. The boy has been under treatment only two weeks.

MANAGEMENT

Those patients who showed a ptosis of the stomach and transverse colon were fitted with a Dr. Aaron band, modified for children's use, with a transverse ridge or shelf so placed as to support the prolapsed part. The child was allowed but 2 ounces of milk or water with each meal. Immediately after eating he was made to rest on the right side for one hour to accelerate the emptying of the stomach, which was always retarded. Two and one half hours after the meal he was given milk or water to drink. In this way the weight of the food in the stomach at one time was lessened.

In cases with the sigmoid loop and intestinal stasis and constipation, massage and gymnastics were of great service. Liquid petrolatum and olive oil usually give better results than other laxatives, but in some instances it was necessary to give fluidextract aromatic cascara three times daily in sufficient amounts to produce an evacuation. We found in these cases, as in hundreds of others of ordinary constipation, that drugs in cathartic dosage may be harmful. Much better results are obtained by small doses of a laxative frequently repeated. We found that with massage and right food, the oil and cascara might be gradually eliminated. Massage and suitable feeding may have to be continued for a long time, probably until the child has grown sufficiently for the pelvis to accommodate itself to the redundant sigmoid.

Our dietetic regulations for the constipation cases are somewhat as follows: White bread, toast and crackers are omitted. Potatoes, rice, milk and eggs are given sparingly. Milk is often replaced by malted milk. Green vegetables are given twice a day. Stewed or raw fruits are given the preference as desserts. Fresh meats and fish are allowed. Whole wheat bread and oatmeal crackers are advised. Raw fruits are given with the stomach supposedly empty an hour to an hour and a half before meals. Strange as it may seem, this rarely interferes with the appetite. We have found the giving of raw fruits with the stomach empty one of the most valuable dietetic means of managing constipation. We are speaking now of cases without stomach involvement.

The Enema Habit.—The Roentgen ray in the above series of cases demonstrates the uselessness and possible dangers of the daily enema, high or low. It dilates and enfeebles the parts not involved, gives only very temporary relief and lays up trouble for future years.

Diarrhea.—In those cases with diarrhea or loose evacuations, all fruits, raw or stewed, and all vegetables were omitted from the diet. This symptom gave us little trouble, and responded readily to diet and simple medication. The patients with diarrhea gave an early history of constipation.

CONCLUSION

There are cases of gastro-intestinal disorders in children due to mechanical agencies. Such disorders will only be satisfactorily managed when the cause is known.

When the child's parents are shown the nature of the trouble by the Roentgen-ray findings they give much better cooperation and have much less criticism of slow improvement.

Probably many of the cases of ptosis of the stomach and intestine found in adults are of a congenital nature, or have their origin during child life because of erroneous habits in eating. The child of 5, 6 or 8 years eats a large meal three times a day and with this drinks two or three glasses of milk, which he is urged to take. All of which means that 2 pounds of food or more are placed in the stomach (more weight than many can accommodate), and ptosis results.

ABSTRACT OF DISCUSSION

Dr. Henry D. Chapin, New York: I presented a paper on this subject several years ago. I showed a series of roentgenograms, the first to demonstrate the rapidity with which food would go through the intestinal tract of infants, and clinically to find out, so far as possible, the location of the pylorus. This study was limited to infants, and I would emphasize one point and that is that the sigmoid of the infant is a much larger structure than is ordinarily supposed. I had a series of fifteen plates. These babies were not sick; I was simply making a study. In several cases the sigmoid went above the umbilicus. In others the sigmoid was a figure-of-eight—in some cases it laid to the right and in others to the left; it was very movable and very large. The sigmoid proved to be much larger and more convoluted than previous anatomic studies had led us to believe. The practical point I made at that time, and which I still believe, is that these pictures show the utter uselessness of trying to give what is known as a "high" enema to a baby. You cannot possibly pass a soft tube through the sigmoid flexure of a baby. It simply curves around and around and it does not pass through.

If you simply pass a catheter from 2 to 3 inches beyond the rectum, having the bag only a foot or two above the level of the bed, and I proved it roentgenographically, you can fill the whole lower bowel in a minute or two. By reversed peristalsis we can soon fill the large bowel. Careful feeding is not enough in these cases. There is at times a structural cause for poor nutrition.

Dr. L. R. DeBuys, New Orleans: At the same meeting at which Dr. Chapin read the paper he just referred to, I reported a case in which there was obstruction—pylorospasm. It was a case of syphilis of the stomach, and showed the peristaltic waves and other symptoms usually seen in pyloric obstruction. The case cleared up with specific treatment. The air ball is nicely seen in these cases. I believe that the projectile character of the vomiting in these cases is due to the air ball. It is rather hard to conceive how the involuntary muscular fibers of the stomach can throw material the distance it does, and my explanation is that air in the baby's stomach along with the food becomes so compressed that in a pneumatic manner it causes the food to be thrown in the direction of least resistance, that is, through the mouth and nose.

Dr. Harry Lowenburg, Philadelphia: I have been following up some cases in the same way in the hope that it would lead somewhere in the treatment of obscure conditions, especially in cases of obstinate constipation. I must confess that my results have been disappointing and after careful, and sometimes expensive, roentgenographic studies I have not found myself much advanced in the therapeutics of these conditions. I wish Dr. Kerley would go a little more into detail as to what his treatment was in some of his special cases; for instance, in the case of colic that he said was the worst he had ever seen. These cases frequently try our own and our patient's patience to the breaking point, not to mention the jeopardy in which they place our professional reputation. Mere talking to these women and showing them a roentgenogram will not suffice. They want their babies to be relieved. They often force us to resort to artificial nourishment. I do think that the point which he brought out with reference to pyloric obstruction is exceedingly valuable, and that it emphasizes the fact, which I have long maintained, that the mere presence of visible peristaltic waves and of a palpable pylorus do not, in themselves, constitute indications for operation. I think that the charcoal test, together with the roentgenographic studies, provides valuable data in reference to the

amount of material which passes through; thus permitting us to have some idea as to whether this is sufficient or not to sustain life, and it further enables us to decide for or against operation. I have also demonstrated that all surgical cases present a weight curve resembling the crisis of pneumonia, while all nonsurgical cases present a weight curve resembling the fastigium of typhoid fever.

DR. JOHN ZAHORSKY, St. Louis: I was led astray by the plates in one case. A child about 5 years of age had vomited everything for the last two months; this was the history obtained from the mother. Two or three doctors had treated the child for dyspepsia. On a careful examination I could get little information. I had a roentgenogram made, and it apparently showed a positive obstruction at the ileoccecal orifice. Nothing seemed to pass through for hours and hours. I could not explain it. I did not know of any such thing as spasm of the valve. I thought it better to have an exploratory operation. A few days later the child was sent to the hospital. On arriving there, a history was given of a slight spasm. I again examined the cerebrospinal system. I had an eye specialist examine the eyes. It proved to be the beginning of a cerebral tumor.

DR. C. G. KERLEY, New York: The management in these cases consisted largely in the use of massage and gymnastics. In the little baby with the very severe colic, massage was given twice a day. In addition to this, one-half ounce of olive oil was given daily in divided doses. Aromatic cascara in small doses three times a day was given temporarily in a few cases, always after meals.

DR. L. T. LEWALD, New York: The question of so-called ileocecal spasm brings up a whole host of other questions. This question of correct interpretation bothers us all more or less. Either the roentgenologist has to go over the clinical record, or have the most close cooperation with the clinician, such as Dr. Kerley and I have had, otherwise we will go astray.

CARE OF TROOPS ON THE MEXICAN BORDER

FOUR MONTHS' MEDICAL EXPERIENCE WITH AN ARMY OF ONE HUNDRED AND FIFTY THOUSAND MEN

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The mobilization of the national guard on the Mexican border has offered unique opportunity for taking stock of our degree of medicomilitary preparedness, and for making a just estimate regarding the advances in military sanitation which have taken place since the last general call on the state troops in 1898. The mobilization of militia organizations began May 10, 1916, when the Texas, New Mexico and Arizona troops were called on and mobilized at San Antonio, Texas, Columbus, N. M., and Douglas, Ariz. The total number of men mustered in was about 5,000. Recruiting to increase the size of these southern organizations was soon undertaken. June 18, 1916, the remainder of the national guard was called out, and began mobilizing at the respective state encampments. June 30, certain northern contingents arrived on the border, and by July 31 the primary southward movement was practically completed, and approximately 110,000 national guardsmen in federal service were encamped along the frontier line from Yuma to Brownsville. Subsequently certain organizations were ordered home for muster out, and were replaced by troops which had been held for training and equipment at the home camps. The number of men sent south during the second and third movement in August and October, respectively, was about 20,000, making the aggregate of state troops which have served on the border approximately 130,000. The largest number of militia on duty at any one time in the Southern Department has been about 110,600. Sept. 15, 1916, there were 101,684 officers and men present.

Prior to the arrival of the militia on the border, practically all of the regular organizations of the mobile army in the United States had been distributed along the frontier. This force numbered approximately 41,000 men, and was subsequently augmented by about 2,500 coast artillery troops of the regular army, employed in the emergency as infantry. Of the total number of regulars on the border, about 13,000 were employed in General Pershing's expeditionary force in Mexico, which used Columbus, N. M., as a base.

MOBILIZATION OF MILITIA

The mobilization of the militia clearly demonstrated many of the weak features in all branches of our militia system, but only those matters pertaining to the sanitary troops will be referred to here. The first point worthy of note has to do with the physical examination of officers and enlisted men in the national guard. In the regular army a high standard of physical fitness is demanded of both commissioned and enlisted personnel before entry into the military service. As a result of periodic examination, and elimination of the unfit, this high standard is maintained. In the case of the organized militia, the law provided, when a state certified that it conformed to the physical standards of the regular army, that its troops should be mustered into the federal service without physical examination, and that the men should, as soon as practicable thereafter, be examined under the supervision of a medical officer of the regular service. Most of the states reported that they complied with regular army standards, and their organizations were consequently mustered into the service of the United States. On examination by the regular medical officers detailed for the purpose, however, it was found that large numbers of the officers and men were unfitted for the military service because of physical defects, often of long standing. The proportion so disqualified varied greatly in different states, but in several reached from 30 to 40 per cent. of those mustered in. Aside from numerous instances of diseases, such as venereal infections, tuberculosis, nephritis, heart lesions and epilepsy, there were great numbers who were found to be disqualified because of conditions which could have been detected by a cursory examination; such were underheight, underweight, absence of teeth, defective vision and hearing, hernias, flatfeet, obvious deformities, immaturity, senility, etc. As extreme instances, men blind in one eye and wearing glass eyes, and one man with an artificial leg had been accepted. This failure on the part of the national guard to conform to the desired physical standard is due partially to lack of experience, time and care on the part of militia medical officers, and partially to the pressure which is often brought to bear by organization commanders in the interest of men whom they specially desire for one reason or another to enlist in their companies.

Such laxity in physical examination is a fundamental defect in the militia system of many states. A unit which loses at mobilization 15, 25 or 40 per cent. of its personnel because of physical defects is seriously handicapped at the outset by reason of shortage of men, and if it goes into active service still retaining

this defective material, the handicap is still greater; such soldiers will fail under the stress of campaign and become a burden on their comrades and on the sanitary service.

In the case of our recent mobilization, a part of the ineligibles were at once discharged from the service at the muster-in camps. In other instances, the regiments were moved to the border before this could be accomplished, and the defectives have been, or are now being, discharged on surgeon's certificate of disability. The government has been put to the expense in each case of equipping a useless man, transporting him to the border, subsisting him while there, and returning him to his home, all through failure of the militia medical officer to maintain a high standard of physical requirements. The number of discharges for disability among the militia in the Southern Department between June 1 and September 30 was 1,174. The records of causes of discharge in June are not now available in the Southern Department, but Table 1 shows numbers discharged during the period from July 1 to Sept. 30, 1916, for both regulars and militia, and the causes which led to their separation from the army. Large numbers of militiamen who did not come up to the required standard still remain in the service, notably those undersized or those having defective vision and hearing, or bad teeth or hernias. Many of the latter have been operated on. Certificates of disability for discharge continue to come in at the rate of about fifteen a day.

TABLE 1.—CAUSES OF DISCHARGE FOR DISABILITY IN SOUTHERN DEPARTMENT, JULY 1 TO SEPT. 30, 1916

Causes of Discharge	Number Discharged	
	Regulars	Militia
Pulmonary tuberculosis	4	55
Tuberculosis of other parts	7	9
Syphilis	..	10
Chronic rheumatism	1	12
Goiter	4	9
Nervous diseases and insanity	24	49
Epilepsy	8	36
Eye conditions	4	81
Ear conditions	8	45
Diseases of heart and arteries	6	49
Varicocele, varicose veins and hemorrhoids	1	25
Diseases of digestive apparatus	4	45
Genito-urinary diseases (nonvenereal)	7	30
Venereal diseases and complications	17	38
Hernia	6	114
Diseases of skin	3	9
Diseases of bones and joints	26	77
Deformities and diseases of feet	14	94
Underweight	..	23
Respiratory diseases other than tuberculosis	3	36
Deficient mentality	2	5
Miscellaneous	2	27
Total	151	878

The second weak point which was demonstrated in the militia system had to do with deficient personnel, lack of training and incomplete or improperly cared-for equipment. These defects apply to the combatant branches equally with the sanitary troops, but whereas the combatant branches are likely to be given at least some time in preparation for hostilities, the sanitary troops are allowed no time to prepare to combat disease, because sickness will begin the day the troops are mobilized and is apt to be more marked at the outset, when the troops are unseasoned, than at a later date when they have become inured to the hardships of field service and when the weaklings have been eliminated. Many regiments had insufficient sanitary personnel, and one at least was mustered in without any. The number of ambulance companies and field hospitals was not nearly sufficient to provide for the needs of an offensive campaign. The endless stream of urgent requisitions for property clearly indicated that many sanitary units had not kept their equipment up to the standard. The situation as regards sanitary equipment and supplies was still further complicated by the appearance, almost coincident with the mobilization, of the 1916 edition of the "Manual for the Medical Department," which radically altered the equipment of sanitary units.

The third weak point in the militia system had to do with typhoid and smallpox prophylaxis. Antityphoid vaccination has never been made compulsory in the national guard, as it has been, since 1912, in the regular army. A few states had inoculated a considerable part of their troops through the voluntary system, but by far the larger number of the militia had to be immunized during the rush of mobilization and physical examination. The difficulty of the procedure was increased by the movement of many regiments to the border before the full course of three inoculations had been completed. This vital procedure has been pushed most vigorously, and now the entire national guard has been immunized, with the possible exception of an occasional straggler. No ill effects have attended the inoculation. The highly satisfactory results which have been attained by typhoid prophylaxis will be discussed at a later time. Fortunately, the Army Medical School in Washington was supplied with the personnel and equipment to produce almost unlimited amounts of typhoid vaccine. Between June 19 and September 30, 745 liters (quarts) of antityphoid vaccine were prepared, and no delay in furnishing it to organizations occurred. The need for smallpox vaccination was well shown by the very high percentage of "takes" in many organizations.

HOSPITAL PREPARATIONS ON THE BORDER

At the time the state troops were mobilized, there were on the border two base hospitals of about 200 beds each, one at San Antonio and one at El Paso; also a temporary hospital at Columbus, N. M., with a capacity of about 150 beds. The state troops brought with them thirty-two field hospitals, and there were also present in the Southern Department six field hospitals of the regular service. The field hospitals, however, were not available for the permanent care of the sick for two reasons; first, they must always be kept mobile so that they may accompany troops if active operations begin; and, secondly, field hospitals are not really "hospitals," but merely meagerly equipped shelters for temporary care of the sick and wounded in actual war while they are on the way to the base hospitals at the rear. Consequently the immediate need of greatly increasing the hospital facilities on the border was foreseen, and construction was promptly started. By building temporary pavilion wards at San Antonio and El Paso, the capacity of the existing base hospitals was

TABLE 2.—NUMBERS AND PERCENTAGES SICK IN BASE AND CAMP HOSPITALS AT TEN DAY INTERVALS

Date	Sick			Number of Those with Venereal Diseases	Approximate Strength of Command	Percentage of Command in Hospital	Number of Vacant Beds
	Regulars	Militia	Total				
Aug. 20	692	1,112	1,804	294	149,000	1.2	467
Aug. 30	832	1,294	2,116	371	151,800	1.4	620
Sept. 10	855	1,306	2,161	323	141,000	1.5	1,188
Sept. 20	899	1,545	2,444	364	146,000	1.7	1,245
Sept. 30	950	1,585	2,535	420	146,000	1.8	1,275
Oct. 10	910	1,478	2,388	434	147,000	1.6	1,686
Oct. 20	980	1,402	2,482	442	147,000	1.7	1,801
Oct. 31	1,016	1,571	2,587	569	142,600	1.8	2,100

increased to 750 and 900 beds, respectively. Base hospitals of 500 beds each were constructed at Brownsville and Eagle Pass, Texas, and Nogales, Ariz., and smaller hospitals, ranging in size from 100 to 350 beds, were built at McAllen, Llano Grande, Del Rio, Fort Clark, Laredo and Marfa, Texas, at Douglas, Ariz., and at Deming, N. M. The amount expended on this construction has been about $450,000, and the total bed capacity, October 27, was over 4,600. At this date all of these hospitals were practically completed, but they opened up for patients at a much earlier period, some of the new ones receiving a limited number of sick in the latter part of July. Nearly one half of the beds were unoccupied October 27. The movement of sick in the base and camp hospitals since August 20 is shown in Table 2.

Fig. 1.—Base Hospital 1, Fort Sam Houston, San Antonio, Tex., prior to the construction of the temporary pavilion wards.

For enlarging the permanent base hospitals and for building the new hospitals a uniform type of construction has been used. The standard unit building, whether ward, office, operating suite, nurses' quarters or dining room is a wooden pavilion 100 feet long by 20 feet wide, having ridge ventilation and an 8 foot porch on all four sides. It is completely screened. Such a building when used as a ward has at one end two small rooms, one for property and one for the wardmaster's quarters. These wards accommodate thirty-four beds comfortably, and by crowding, in emergency could shelter forty. Detached shower baths are provided, and all buildings are connected by covered corridors. The pavilions cost from $1,800 to $2,500 each, depending on the local prices for lumber and labor.

The obtaining of equipment for the new hospitals from the large medical supply depots at St. Louis and New York was inaugurated as soon as construction commenced, and the more essential articles were on the ground by the time the first buildings had been sufficiently advanced to receive patients. By the first of September the new hospitals were practically complete in their equipments. Standard white enameled hospital beds with hair mattresses are provided. Each hospital has a well equipped operating room with sterilizing outfit heated by gas or coal oil. An excellent Roentgen ray machine is installed. These hospitals, as a rule, are manned by officers of the regular Medical Corps and the Medical Reserve Corps, and by enlisted men of the Medical Department. Female nurses from the Army Nurse Corps are serving at all but three of the hospitals, the three not so supplied being of small capacity. In some of the border hospitals, selected medical officers and enlisted men of the militia formed a part of the personnel and rendered valuable assistance.

LABORATORIES

Prior to the mobilization of the militia, there was at San Antonio a department laboratory under the charge of Major Joseph F. Siler, Medical Corps. On the coming of the state troops, Department Laboratory No. 2 was established at El Paso, Texas, by Major Charles F. Craig, Medical Corps, and Department Laboratory No. 3 at Nogales, Ariz., by Major Edward B. Vedder, Medical Corps. All of these laboratories are prepared to perform every variety of advanced laboratory work. In addition, each hospital has a laboratory equipped for ordinary clinical work. There are also in the Southern Department two field laboratories available to send where needed. One of these has recently been functioning at McAllen, Texas, where there was an outbreak of paratyphoid fever among the New York troops. The work of the laboratories has been of great practical as well as scientific value. But for the laboratories, the presence of paratyphoid fever, nearly all of a mild type, would have been unknown. The reports which will later be rendered on this disease by the heads of the laboratories will undoubtedly be the most extensive productions on this subject ever published in this country.

Fig. 2.—Temporary pavilion wards at Base Hospital 1, Fort Sam Houston, San Antonio, Tex. Brick buildings in rear and to right are cavalry officers' quarters. Building under construction on left is the new laboratory for Department Laboratory 1. Tentage on left is a part of Field Hospital Company 6.

FIELD HOSPITALS, AMBULANCE COMPANIES AND MOTOR AMBULANCES

There have been in the Southern Department thirty-two militia field hospital companies and twenty-two ambulance companies, besides the six field hospital companies and an equal number of ambulance com-

panies belonging to the regular army. For both the regular and the militia, preparedness demands that more of these important sanitary formations should be organized, until we have ready for immediate service sufficient field hospitals and ambulance companies to provide four of each for every division of troops, this being the minimum necessary for efficiency in campaign. Some progress in this direction is being made by the Militia Bureau.

During the summer, motorization of the field hospitals and ambulance companies has been proceeding. Four of the six regular field hospitals are already motorized, the standard equipment being ten 1½ ton trucks and one touring car. A part of the trucks are

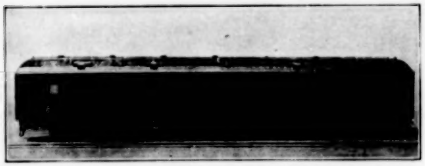

Fig. 3.—Car 4, Hospital Train 1. Note side doors for loading litter patients.

for transporting the enlisted personnel, and the touring car is for the officers. Three of the regular ambulance companies have been motorized, and motor transportation has been found of great use in evacuating sick to the bases from Mexico and on division practice marches. The standard motor equipment for an ambulance company consists of two 1½ ton trucks, one spare-parts truck, and twelve ambulances, two of the latter being specially designed for comfortable transportation of sitting up patients. There are, however, certain military limitations to the use of motor transportation for field hospitals and ambulance companies. In the first place, road conditions will be encountered at times, especially in wet weather, which will preclude the use of automobile ambulances or trucks. Secondly, none of the ambulances at present obtainable are able to keep down to the speed of a marching command (from 2½ to 3 miles an hour) without overheating the engine. There appears, therefore, to be a distinct field of usefulness for the mule-drawn ambulance and army wagon, and the present plan contemplates motorizing three fourths of the independent sanitary units and leaving one fourth equipped with animal transportation. Trailer ambulances have not been found successful over the rough roads in Mexico, but have a limited usefulness on good highways.

September 30, there were 135 motor ambulances in the Southern Department, and many more *en route* or in process of building. Part of those already received were supplied to the ambulance companies, two or more were in use at each of the base and camp hospitals, and the remainder in store awaiting distribution.

HOSPITAL TRAIN

To provide for possible active service in Mexico and to evacuate sick in case of need to general hospitals in the North required the services of a hospital train. This train consists of ten Pullman cars especially reconstructed for the purpose and leased by the War Department. It carries a staff of officers and enlisted men of the Medical Department and seven female nurses of the Army Nurse Corps, and also cooks and porters. The ward cars accommodate 160 patients. In place of the lower berths, iron bedsteads with springs and hair mattresses are provided. A well equipped operating room occupies a part of one car, and a kitchen is located in another. Doors on the sides and wide corridors allow ready access of litters to every part of the train. In all respects this train is much more complete and luxurious in its appointments than any of those used in the Spanish-American War. The train has already made several trips to the Brownsville District, evacuating sick from the camp hospitals to the base hospital at San Antonio, and has made one trip to evacuate the sick from the latter point to the Army and Navy General Hospital at Hot Springs, Ark.

SANITARY PERSONNEL

With the mobilization of the state troops, a severe strain was thrown on the personnel of the Medical Department of the regular army. The sanitary personnel of the organized militia is not even sufficient to provide fully for the service at the front; that is, the service with regiments, field hospitals and ambulance companies. Consequently, the duty of building and manning new hospitals and hospital trains, of running supply depots, and of providing physical examiners and sanitary inspectors and instructors devolved on the Medical Department of the regular army. Had invasion of Mexico occurred, the strain would have been very much more severe. As was to be expected, the number of medical officers of the regular army allowed by law was found insufficient. All other parts of the United States were stripped of regular medical officers to supply the needs of the Southern Department. Extensive use was made of officers of the Medical

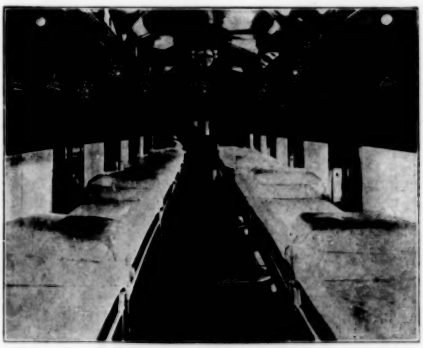

Fig. 4.—Inside view of Car 5, Hospital Train 1. In the other ward cars the upper berths have been retained for less serious cases, while the beds are reserved for the more serious.

Reserve Corps, the Army Directory of Aug. 20, 1916, showing that 340 were then in the active service. Of these, 141 were on duty in the Southern Department, Aug. 31, 1916, the remainder being at the foreign stations and in the North at posts stripped of regular officers. The number of regular officers on duty the same date was 209. It was found necessary to recall medical officers from Panama, Hawaii and the Philippines to supplement the supply available in the

United States. The number of militia medical officers in the Southern Department, Sept. 30, 1916, was about 700. The enlisted men of the Medical Department of the regular army in the Southern Department, Sept. 30, 1916, aggregated over 3,000. There were 197

Fig. 5.—Operating room in Hospital Train 1.

female nurses of the Army Nurse Corps, a part of these being nurses on the Red Cross reserve list who were hired by the government. Aug. 31, 1916, there were thirty-nine dental surgeons of the regular army on duty in the Southern Department. They were serving the needs of the regulars and militia alike, a force of 150,000 men. A considerable number of dental surgeons of the militia were appointed in September, but owing to the inability to obtain portable dental outfits promptly from the makers, it has been impossible to provide all of them with the necessary instruments.

The officers of the Medical Reserve Corps responded freely to the call for active duty, in many instances to their great personal disadvantage. The same applies to the medical officers of the militia who are serving on the border, in numerous cases at large financial loss. The result of the insistent calls of family and practice has been the resignation of many officers, both in the Medical Reserve Corps and in the militia. Also, many requests for return to the inactive list are received from members of the Reserve Corps. These losses are especially notable since the prospect of active service in Mexico has become less and less. The work to be done on the border has not diminished, and those who have acquired a certain degree of medicomilitary experience, and then return home, have to be replaced by others who usually have no experience. This feature of the situation constitutes a serious defect in our present system. It has, however, one bright side, which is that it offers a certain amount of medicomilitary training and experience to a considerable number of physicians who would doubtless again volunteer for service with the colors in any real national emergency.

MEDICAL SUPPLIES PROMPTLY FURNISHED

With few minor exceptions, medical property of all kinds has been promptly obtainable by the troops on the border, and no suffering or hardship has resulted from shortage of medical or surgical supplies. To expedite issues, medical supply depots were established at El Paso and San Antonio. Requisitions referred to these depots are usually filled on the day of receipt, and, except in the case of very bulky articles, shipment is made by express or mail. The equipping of the new hospitals, the stocking of the new supply depots and the issuing of thousands of shipments has thrown an amount of work on the supply department which was undreamed of since 1898, and which, fortunately, has been accomplished without the delays and confusion characteristic of that period.

No call has been made on the national Red Cross for furnishing either personnel or supplies. The published statement that Red Cross nurses have been sent to the border is correct only to the extent that the nurses in question were selected from the Red Cross enrolled list of nurses; but these nurses, as soon as their military duties began, were paid, quartered and rationed by the government in exactly the same way as other members of the Army Nurse Corps.

SANITARY INSPECTORS AND INSTRUCTORS

The national guard and the regular army have been grouped along the border for the most part in large camps ranging in size from 4,000 to 15,000 men each. In certain regions there have been small detachments scattered about for special patrol work. The sanitation of the larger camps has presented important problems for solution, and these have been met most successfully, as will be learned from the later remarks on the morbidity and mortality. The natural advantages of the camp locations have varied, but on the

Fig. 6.—Type of motor ambulance being furnished to army; mounted on General Motors, Buick or Service truck chassis; it carries four recumbent or eight sitting patients; the upper litters are supported by the strap slings shown in the photograph illustration.

whole the sites have been least satisfactory in the Brownsville District along the Rio Grande, partly because this region is lower both in latitude and elevation than other sections of the Southern Department, and partly because of the unusual and almost continuous rainfall which has characterized this section during the past summer. To each camp has been assigned one or more experienced regular medical officers to act as camp sanitary inspectors, and when sev-

eral camps are located in one military district, a district sanitary inspector supervises all. The functions of the sanitary inspectors comprise not only the correction of faulty conditions and the giving of expert advice in sanitary matters, but also teaching in all of the duties pertaining to medical department administration in the field. A comprehensive and graded course of instruction in medicomilitary matters has been prepared and is being carried out in the entire Southern Department under the supervision of officers of the regular army. This course applies not only to the officers, but also to the enlisted men of the Medical Department (formerly known as Hospital Corps men).

In addition to the above-mentioned sanitary inspectors, certain selected officers from the Medical Corps of the regular army have been detailed as general sanitary inspectors. It is their duty to visit the camps, investigate sanitary conditions and to report thereon to the adjutant-general of the army. These general sanitary inspectors are authorized to issue, in the name of the commanding general of the department, the necessary orders for the immediate correction of any sanitary defects prejudicial to the health of the troops.

Fig. 7.—Interior of temporary pavilion ward of the type used at all the base and camp hospitals on the border. Note ventilating space in ceiling which can be closed when necessary by sliding panels; capacity, thirty-four beds.

SANITARY PROCEDURES

No new sanitary procedures of importance have been employed, and success in preserving health has depended on the continuous and stringent enforcement of well known sanitary principles. First, and probably most important, has been the rigorous smallpox and antityphoid vaccination. Water supplies, when not in themselves above suspicion, have been for the most part purified by the calcium hypochlorite process, the Lyster bag being used. Kitchen garbage, both solid and liquid, has been disposed of in company incinerators adjacent to the kitchen. Human excreta have been received in pits covered by fly-proof Havard boxes with automatically closing covers. Urinal troughs are swabbed with crude oil daily. In most camps the pits have been burned out daily with crude oil and straw. In some camps spraying of the interior of box and pit with a mixture of coal oil and lampblack has been practiced. This procedure has proved very successful in keeping flies out of the pits. The latrines are located on the side of the camp most remote from the kitchens. Flies have been combated by prompt incineration of garbage, cleanliness of picket lines, early removal of manure, catching of flies in

TABLE 3.—WEEKLY REPORT OF SICK FOR REGULARS AND MILITIA IN SOUTHERN DEPARTMENT; MEAN STRENGTH OF REGULARS APPROXIMATELY 43,000 AND OF MILITIA APPROXIMATELY 105,000

		Number Sick			Cause of Presence on Sick Report						
		In Hospital	In Quarters	Total	Injury	Diarrhea	Dysentery	Malaria	Paratyphoid	Typhoid	Other Diseases
July 31	Regulars	609	199	870	188	80	2	13	...	...	558
	Militia	428	486	914	76	270	4	4	...	...	560
August 5	Regulars	455	175	630	146	68	9	3	...	1	403
	Militia	596	501	1,097	130	298	13	...	...	1	605
August 12	Regulars	547	178	725	118	56	6	6	...	2	537
	Militia	629	382	1,011	258	62	14	9	...	2	666
August 19	Regulars	722	296	1,018	185	57	14	16	...	3	743
	Militia	928	1,224	2,152	382	200	21	20	5	1	1,514
August 26	Regulars	762	283	1,045	216	40	20	22	...	3	735
	Militia	1,022	1,054	2,076	324	241	14	16	6	2	1,473
September 2	Regulars	711	299	1,010	185	40	30	29	2	2	712
	Militia	1,155	860	2,015	262	202	15	28	35	8	1,464
September 9	Regulars	863	244	1,107	174	44	19	36	2	1	831
	Militia	1,371	722	2,093	271	131	20	53	67	8	1,543
September 16	Regulars	803	228	1,091	174	49	29	34	1	...	804
	Militia	1,351	861	2,212	294	158	32	90	70	4	1,564
September 23	Regulars	843	385	1,228	193	61	27	57	18	...	892
	Militia	1,457	939	2,396	361	118	24	93	69	5	1,726
September 30	Regulars	904	406	1,460	209	35	30	29	23	3	1,073
	Militia	1,564	856	2,420	390	103	16	108	47	11	1,745
October 7	Regulars	1,150	252	1,402	175	40	10	32	33*	3	1,087
	Militia	1,261	579	1,840	282	66	13	63	50	11	1,378
October 14	Regulars	922	272	1,194	170	20	25	13	58*	2	911
	Militia	1,554	596	1,947	252	52	10	49	54	14	1,519
October 21	Regulars	958	262	1,220	183	33	14	20	62*	1	882
	Militia	1,376	693	2,069	284	41	8	56	44	14	1,569
October 27	Regulars	895	253	1,148	175	20	17	16	21	1	929
	Militia	1,306	828	2,134	311	29	10	62	55	16	1,704

* Nearly all of this paratyphoid occurred in Mexico.

traps and fly-paper, and by poisoning them with formaldehyd solution. Kitchens and mess-shacks have been screened as soon as possible, but there has been considerable delay owing to difficulty in obtaining promptly the great amount of netting required. The usual methods for preventing the breeding of mosquitoes have been practiced. Mosquito bars for the entire militia command could not be furnished for a long time, because the Quartermaster Department found it impossible to purchase such large quantities in the United States. A small malarial outbreak in September, at Llano Grande, Texas, was handled by prophylactic use of quinin pending the eradication of mosquitoes and their breeding places. Excellent shower baths were installed as soon as possible in all camps. Venereal prophylaxis has been carried out with the usual protargol injections and calomel-ointment inunctions. Instruction in personal hygiene has been given to all troops.

Fig. 8.—Type of screened kitchen and mess-shack for one company; kitchen in far end and dining room in near end. Note garbage incinerator at extreme left.

EXCELLENT HEALTH CONDITIONS ON THE BORDER

The remarkable absence of infectious diseases and of deaths from disease among the troops on the border is a striking demonstration of the progress in military sanitation which has been made since 1898. This is particularly true in regard to typhoid fever, which will be given separate consideration further on. Among the volunteer troops serving within the continental limits of the United States in 1898, malarial fevers and diarrheal diseases caused a little over one half of the total admissions to sick report. A study of Table 3 will show that in 1916 this group of diseases has been a small factor in the morbidity lists. In 1898 among 85,000 volunteer troops serving in the United States there were 1,986 deaths from disease in the eight months from April 22 to December 31. In 1916, among 105,000 state troops on the border, there have been thirty-eight deaths from disease for the three months from July 1 to September 30. Among 43,000 regulars during the same period, there have been nineteen deaths from disease. Of these deaths, only twelve among the militia and five among the regulars were due to acute infectious diseases.

The rates per thousand on sick report in the different districts of the Southern Department are shown in Table 4 for regulars and militia separately. It will be noted that in most instances the sick rate is lower for the militia. This should not be taken to mean that the health of the state troops is really better than that of the regular army. The true explanation is as follows: In the regular service a soldier who cannot do his full duty because of a minor disability is placed on sick report, and consequently his illness becomes a matter of official record. This rule is strictly enforced. As a result of the more lax discipline in the state troops, soldiers are frequently excused from duty

TABLE 4.—REPORTS OF RATES PER THOUSAND ON SICK REPORT IN SOUTHERN DEPARTMENT; STRENGTH OF REGULARS APPROXIMATELY 43,000 AND OF MILITIA APPROXIMATELY 105,000*

		Brownsville District†	New York Division†	Laredo District	Eagle Pass District	Del Rio District	Big Bend District	El Paso District	New Mexico District	Punitive Expedition in Mexico	Arizona District	Nogales District	Camp Wilson, San Antonio, Texas
Approximate strength*	Regulars	4,700	None	2,055	3,364	1,580	1,096	5,398	744	12,837	5,370	1,205	2,843
	Militia	23,960	17,000	6,627	6,203	None	2,150	20,574	2,270	None	6,408	8,522	30,650
August 19	Regulars	29	..	11	56	25	13	27	26	21	18	14	..
	Militia	32	17	17	27	..	22	15	35	..	15	26	..
August 26	Regulars	17	..	12	25	25	37	26	24	20	19	22	..
	Militia	18	15	17	24	..	43	16	37	..	21	16	..
September 2	Regulars	28	..	14	23	12	31	27	27	21	21	21	31
	Militia	28	..	17	32	..	44	17	18	..	20	17	15
September 9	Regulars	28	..	13	24	29	34	33	26	17	23	22	32
	Militia	20	..	14	18	..	41	18	21	..	26	22	16
September 16	Regulars	28	..	25	30	24	40	30	30	15	23	22	28
	Militia	21	..	15	23	..	30	17	25	..	28	7	23
September 23	Regulars	26	..	37	32	28	32	29	23	20	22	29	22
	Militia	20	26	10	20	..	38	15	25	..	35	16	22‡
September 30	Regulars	26	..	21	30	34	37	28	26	18	23	35	23
	Militia	25	28	12	23	..	43	16	23	..	28	29	33‡
October 7	Regulars	20	..	17	..	27	36	29	22	19	18	25	26
	Militia	25	26	13	..	..	41	23	30	..	25	14	26
October 14	Regulars	18	..	14	29	30	34	28	19	20	17	17	32
	Militia	22	25	14	19	..	39	19	34	..	14	14	21
October 21	Regulars	20	..	16	29	29	36	25	24	19	23	23	31
	Militia	26	26	14	17	..	48	19	11	..	18	18	20

* These figures for strength are only approximate, as they varied materially from week to week. The rates per thousand are based on the actual strength reports for each week, as determined locally by the surgeons rendering the reports.
† The New York Division, though located geographically within the Brownsville District, was not included as a part of that district.
‡ During this period these troops were on a strenuous division march.

to a varying degree without appearing on sick report. This is especially likely to occur in the case of the more common injuries. The tendency to excuse men from duty without putting them on sick report is often favored by the militia surgeons, in the first place, to escape what is considered unnecessary paper work, and in the second place, in many instances, to avoid entering an undesirable "not-in-line-of-duty" record against men who have venereal disease. Since the sick record is the basis for the adjudication of future pension claims, it can readily be seen that failure to record disabilities which interfere with performance of duty is an injustice either to the soldier or to the government, depending on whether the disability is or is not incident to the service.

NUMBERS SICK IN CAMP AND BASE HOSPITALS

In Mexico serious cases have had to be treated for a time, at least, in field hospitals. In other sections of the Southern Department all save the most trivial and ephemeral cases of injury and disease were placed in the base and camp hospitals. The numbers of sick in these hospitals at ten day intervals is shown in Table 2 for regulars and militia separately. The percentage of the total command in these hospitals is

Fig. 9.—Type of kitchen garbage incinerator used in camps on border; it is located close to company kitchen shown on right. Solid garbage is burned in the fire box, and slops are evaporated in the shallow pan on the top. From the corner of the screened kitchen hangs a "Lyster bag," employed in the field for sterilizing water by the use of calcium hypochlorite, put up in proper quantities in sealed glass tubes. Note the spring faucets at bottom of bag.

given, and indicates what an inconsiderable amount of morbidity has existed — always well below 2 per cent. It will be noted that approximately 16 per cent. of the illness has been due to venereal disease. The figures given here by no means represent the entire number of venereal cases, because many with this class of diseases are treated in quarters, or, in the case of the militia, are not put on sick report at all.

EXTREMELY LOW DEATH RATE

Table 5 shows the number of deaths, with causes, for regulars and militia separately during the four month period June to September, inclusive. During this time there were 121 deaths in a command averaging nearly 150,000 men during the latter three months. Of these 121 fatalities, 61 were due to disease, 8 were due to unknown causes, and 52 to external causes such as gun-shot wounds, ordinary injuries, drowning, lightning stroke, etc. Only 17 of these deaths were caused by acute infectious diseases, viz.: 3 from pneumonia, 2 from meningitis, 9 from dysentery, 1 from paratyphoid fever, 1 from scarlet fever, and 1 from enterocolitis.

RARE CASES OF TYPHOID FEVER; NO DEATHS FROM TYPHOID

From May 1, 1916, to Oct. 18, 1916, there have been twenty-four cases of typhoid fever, with no mortality, among the 170,000 troops which have served in the border camps throughout the Southern Department and in Mexico. In 1898 among 147,795 regular and volunteer troops there were 20,926 cases of typhoid, with 2,192 deaths, in about eight months. Most of the cases were contracted within the United States. In 1899, among 105,260 regular and volunteer troops there were 2,184 cases of typhoid with 258 deaths. During the year 1900, among 100,389 regulars and volunteers there were 978 cases of typhoid fever and 164 deaths. The phenomenal improvement which has

TABLE 5.—NUMBER AND CAUSES OF DEATHS IN SOUTHERN DEPARTMENT AMONG APPROXIMATELY 43,000 REGULAR TROOPS AND 105,000 MILITIA; FEW OF THE MILITIA WERE PRESENT IN JUNE*

Causes of Death	Number of Deaths								Total
	June		July		August		September		
	Regulars	Militia	Regulars	Militia	Regulars	Militia	Regulars	Militia	
Gunshot wounds	11	1	3	..	..	..	4	2	21
Injury	3	..	1	1	3	..	2	3	13
Suicide	1	..	3	..	1	1	2	2	10
Drowning	..	..	..	2	2	..	..	3	7
Diseases of the heart	..	..	..	..	..	1	4	1	6
Pneumonia	..	..	..	1	1	..	..	1	3
Appendicitis and peritonitis	..	..	1	1	2	5	..	6	15
Meningitis, tuberculous	..	..	..	1	..	..	1	..	2
Meningitis, acute	..	..	1	..	1	..	..	..	2
Diabetes	..	..	..	..	..	..	..	1	1
Gonorrheal septicemia	..	..	..	1	..	..	..	..	1
Perforating gastric ulcer	..	..	..	..	..	..	1	1	2
Dysentery	..	..	..	..	4	1	4	9	
Cerebral tumor	..	..	..	..	..	..	1	1	
Abscess of liver	..	..	..	..	..	..	1	..	1
Intestinal obstruction	..	..	..	..	..	..	..	1	1
Enterocolitis	..	..	..	..	..	..	1	..	1
Diseases of kidney	2	..	1	1	..	..	1	..	5
Pemphigus contagiosus	..	..	..	..	1	..	..	..	1
Paratyphoid fever	..	..	..	..	..	..	..	1	1
Scarlet fever	..	..	..	..	..	..	..	1	1
Tuberculosis, type unknown	..	..	..	..	..	2	..	..	2
Septicemia	..	..	1	..	..	1	..	..	2
Cerebral hemorrhage	..	..	..	..	1	..	..	..	1
Sunstroke	..	..	1	..	..	..	..	..	1
Tertiary syphilis	2	..	..	..	..	..	..	..	2
Toxemia, cause not stated	..	..	..	..	..	1	..	..	1
Undetermined	..	..	2	..	3	3	..	..	8
Total	19	1	14	8	14	19	18	28	121

* For mortality in October, see Our Troops on the Border, News Department, this issue.

characterized the present mobilization, as compared with the mobilizations of 1898, 1899 and 1900, may be attributed in part to betterment of general sanitary conditions, but much more largely to a specific measure, namely, the compulsory administration of antityphoid vaccine. This is evidenced by the fact that, although typhoid is endemic in this section, there have been but twenty-four cases of this disease among the troops, while there have been very much greater numbers of paratyphoid and dysentery infections, both of which are preventable by the same general sanitary precautions which are efficacious in limiting the spread of typhoid. It is the specific sanitary procedure, antityphoid inoculation, which has safeguarded the troops from the ravages of typhoid fever.

Table 6 shows the status and date of the typhoid vaccination in the case of those soldiers who developed the disease. It will be noted that no regular soldier

has contracted typhoid fever who had been vaccinated within a period of three years. Among the 130,000 militia, fourteen cases have occurred in men presumably vaccinated within three years. Nine of them, according to the records, were vaccinated during the mobilization. The exact facts in regard to these cases will, perhaps, never be ascertained. It is known that in some instances vaccination of militia was performed with vaccine other than the standard army preparation, which has given such remarkable results in the regular army. It is also possible, as a result of haste, lax methods and faulty records, that some of these fourteen men referred to above may have failed to receive the inoculation or may not have received the full course of three doses which is required. All that can be said at present is that the records indicate that they had been vaccinated within three years.

TABLE 6.—ANTITYPHOID VACCINATION STATUS OF PERSONS WHO DEVELOPED TYPHOID FEVER IN THE SOUTHERN DEPARTMENT, MAY 1 TO OCT. 18, 1916

Date of Typhoid Vaccination	Number of Cases of Typhoid Developing in		
	Regular Army	Militia Troops	Civilians Connected with Army*
Vaccinated in 1916	...	9†	
Vaccinated in 1915	...	3‡	
Vaccinated in 1914	...	2§	
Vaccinated in 1913	1	1	
Vaccinated in 1912	2		
Vaccinated in 1911	1		
Vaccination incomplete at onset of disease	...	2§	
Never vaccinated	2	...	5*
Unknown; probably not vaccinated	...	1	3*
Total	6	18	8*

* Civilians employed by the army are supposed to be vaccinated in the same manner as soldiers, but many escape vaccination as a result of various causes. Two of these cases of typhoid were in children of soldiers.

† Three of these are known to have received vaccine other than the army product. Others may have.

‡ One of these is known to have received vaccine other than the army product.

§ Only one dose had been given when these two men developed typhoid.

TABLE 7.—SOURCES OF INFECTION

	No. of Cases		No. of Cases
Fort McIntosh, Texas	1	Brownsville, Texas	3
San Antonio, Texas	4	Pharr, Texas	2
McAllen, Texas	3	Mission, Texas	1
El Paso, Texas	4	Mexico	4
Marfa, Texas	1	Kentucky	1

How scattered among the soldiers these twenty-four cases of typhoid were is shown in Table 7.

CASES OF PARATYPHOID FEVER

This disease, which has been found to be a factor of importance among the European armies, has also occurred in a considerable number of instances on the Mexican border. From May 1 to October 7 there have been 250 cases diagnosed by blood culture, and undoubtedly there were other cases which remained incorrectly diagnosed as a result of not submitting specimens for laboratory examination. About 600 negative blood cultures have been made in cases of indefinite fevers. In general, the cases of paratyphoid have been very mild and often of brief duration. A few patients have been extremely ill and have shown hemorrhages and a typhoid condition. Rose spots have been plentiful. There has been one death attributed to paratyphoid, but the diagnosis is not certain, as the blood specimen, through error in labeling, was not submitted to cultural test. All but five of the paratyphoid infections have been caused by *Bacillus paratyphosus A*. There was a sharp epidemic of paratyphoid among the New York troops at Mission, Texas. This was combated by stringent sanitary precautions, and has been suppressed. In the week ending October 7 there were but seven new cases of paratyphoid in the entire department. Antiparatyphoid inoculation with a mixed A and B vaccine has been begun among the New York troops and in some other portions of the department, but it is too early to report on the extent and results of this prophylactic measure.

TABLE 8.—DISTRIBUTION OF PARATYPHOID A

	No. of Cases		No. of Cases
Fort Ringgold, Texas	1	San Benito, Texas	1
McAllen, Texas	41	Marfa, Texas	1
Mission, Texas	100	El Paso, Texas	4
Donna, Texas	4	Fort Huachuca, Ariz.	2
Pharr, Texas	4	Douglas, Ariz.	11
Rio Grande, Texas	6	Columbus, N. M.	2
Brownsville, Texas	7	San Antonio, Texas	1
Laredo, Texas	4	Mexico	46

Fig. 10.—Base Hospital No. 5, Nogales, Ariz. Construction typical of other camp and base hospitals along the border. Picture taken Aug. 27, 1916. When all construction is completed, capacity will be 500 beds.

The distribution of the diagnosed cases of paratyphoid A is shown in Table 8. By far the larger number of cases originated in Mexico and in the lower Rio Grande valley. McAllen, Mission, Donna, Pharr and Llano Grande are all close together, and located between 25 and 50 miles west of Brownsville, Texas.

Three of the paratyphoid B infections occurred at San Antonio, one at El Paso and one in Mexico.

DYSENTERY

Sporadic cases of dysentery have appeared in various regions in the Southern Department, and there have been eight deaths among the militia from this disease. A small epidemic of dysentery occurred during the summer in the expeditionary force in Mexico, both the bacillary and the amebic varieties being encountered. The disease appears to be of a milder type than that found in the Philippines. There has been but one death from this cause in Mexico. In the Mexican expedition, owing to the strenuous service, the poor roads and the absence of rail communication, the dietary conditions have at times been unsatisfactory, and the appliances for the more complicated sanitary procedures have not been at hand. Dysentery

has now been almost entirely eliminated from the expedition. That the health conditions among the forces in Mexico are satisfactory is shown by the report from the chief surgeon of the expedition for the month of September (Table 9).

TABLE 9.—AVERAGE SICK RATES PER THOUSAND AMONG TROOPS IN MEXICO DURING SEPTEMBER, 1916

Absent sick		13.8
Present sick:		
Venereal diseases	2.2	
Intestinal diseases	2.7	
Fevers	3.1	
All other diseases	10.6	
		18.6
Total sick per thousand		32.4

SOME OF THE LESSONS LEARNED FROM THE MOBILIZATION

1. The physical standards of the regular army should be strictly applied to the members of the national guard.

2. All members of the national guard should be immunized against smallpox, typhoid and perhaps the two paratyphoids, at time of enlistment. The former two procedures should be repeated in three or four years. The length of time the paratyphoid vaccination will protect remains to be worked out.

3. The states should organize sufficient ambulance companies and field hospitals to bring the allowance of each unit up to at least four for every authorized division of state troops. All sanitary equipment should be kept complete, serviceable and up to date.

4. The medical corps of the regular army (even when it reaches after four years the recently authorized allowance of seven per thousand of strength in the army) will be insufficient to provide adequately for the needs of any such force as would be required in a war of the first magnitude.

5. Consequently, adequate medicomilitary training should be given to the militia sanitary organizations and to the Medical Reserve Corps.

6. The Medical Reserve Corps should be greatly increased in size — to 10,000, or perhaps 20,000. There were approximately 1,600 men in the corps last summer, and from these it has been difficult to get 350 for active service. Few wish to remain long on active duty.

7. Typhoid fever need no longer be dreaded as a scourge to armies.

8. State troops can be maintained indefinitely in camps in the South, and at the same time remain in excellent health, provided certain simple sanitary precautions are continuously and rigidly enforced. These precautions will not be continuously and rigidly enforced unless alert and experienced sanitary inspectors are placed in charge and vested with sufficient powers to enable them to compel the prompt correction of sanitary defects.

Fort Sam Houston.

SHINGUARD TYPE OR LICHEN PLANUS OCREAFORMIS

A CONTRIBUTION TO THE RARER FORMS OF LICHEN PLANUS *

DAVID LIEBERTHAL, M.D.
CHICAGO

In the majority of cases of lichen planus the diagnosis offers no great difficulty, while there are aberrant types which require considerable skill in their interpretation. To these belongs the case here presented, which is of extreme rarity, no duplicate of it ever having been recorded. For this reason its demonstration before the Chicago Dermatological Society, and later at the clinical session of the American Dermatological Association in Chicago, 1914, elicited very interesting discussion.[1] And while some difference of opinion existed, yet the majority of the members accepted the diagnosis — lichen planus.

Fig. 1.—Anterior view of legs.

History.—The patient was admitted to the hospital, Jan. 12, 1913, and the following account of his illness was secured: He was a Russian, aged 63, glazier, married, and the father of two healthy children. He has always been of temperate habits, has had no venereal or skin disease, and knows of none of his relatives having been afflicted with such. He had no recollection of having passed through any serious illness otherwise. The present condition began about a year and a half before this examination, with intensive burning of both shins. It was completely relieved by treatment in a short time. Six months later the burning recurred, and with no apparent change of the skin, lasted for five months, when numerous small blisters appeared on the legs, causing severe itching. On scratching, the blisters were ruptured. Very soon thereafter pimples began to develop, and the itching and burning became gradually less severe. He was afflicted with habitual constipation.

* From the Dermatological Department of the Michael Reese Hospital.

* Read before the Section on Dermatology at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

1. Lieberthal, David: Jour. Cutan. Dis., 1915, p. 395.

Examination.—He was of small stature and poorly nourished. The lungs were slightly emphysematous, and there was a bilateral inguinal hernia. The urine was alkaline, containing a few leukocytes and epithelia, but no casts. The blood showed no deviation from the normal, except a hemoglobin content of about 65 per cent. The Wassermann reaction was negative. The lymphatic glands in the groins were slightly enlarged. Otherwise no pathologic conditions were found except those of the skin and of the buccal mucosa. The general appearance of the whole skin was thin and rather dark. Both tibial regions from slightly below the knees, and down to above the ankles were covered by an eruption of closely set lesions which was perfectly symmetrical. These plaques were enveloping the legs nearly completely. They were gradually becoming narrower, as they approached the posterior aspects, where only a small streak of normal skin interrupted the complete envelope. The lesions consisted of pinhead to bean-sized, angular, flat and convex firm papules, of a dull yellowish to dark brown. They were partly smooth, partly showing slight scaling. The peripheral lesions were mostly flat and of small size, only few showing an indication of a central depression. All lesions throughout the affected parts were apparently solitary, that is, separated from each other by normal skin. They were very densely arranged and resembled on each leg, as a whole, *quasi* a patch paved with "cobblestones." In their aggregate, as they surrounded the legs, they reminded vividly of "shinguards." Within and between the papules on the anterior aspects (of the legs) were a number of pustules. The parts affected were more pigmented than the rest of the integument. On the mucous membrane of the right cheek, opposite the molars, there was a group of dull white flat and angular papules.

Fig. 2.—Lateral view of right leg, showing narrowing of patch.

Histology.—A piece of skin was excised from the upper margin of the plaque on the right leg for microscopic examination at the time when photographs were taken. (The wound thus made is visible in Figure 1.) The findings were the following: The stratum corneum was considerably hypertrophied; no nuclei were here encountered. It was dipping downward in the form of plugs into follicles and ducts of sudoriparous glands and independently of either. The stratum granulosum was thickened. The stratum spinosum, as a whole, was reduced in thickness. The intercellular spaces were narrow, the cells normal, except a vacuole here and there in cells of the basal layer. Numerous clusters of yellow brown pigment were scattered throughout the spinous layer. The interpapillary processes were variously shaped, here broadened, there elongated. The papillae showed corresponding formation. The collagenous tissue of the corium was sclerosed throughout. The elastic tissue was normal. There was a small round cell infiltration, which was pretty nearly limited to the papillary and subpapillary layers. The cellular elements were closely arranged, either in the form of irregular patches, or as streaks. The infiltration ceased at and below the subpapillary layer, except here and there a streak of cells was accompanying a sweat gland or a blood vessel. No plasma nor mast cells were found. The blood vessels and lymphatic spaces were contracted. Hair follicles were scanty, sudoriparous glands numerous and normal.

Course and Treatment.—Proper hygienic and dietetic measures were instituted. The pustules were opened and wet dressings of aluminum acetate applied. Within ten days these had healed. Thereupon a 2 per cent. salicylic paste locally and Fowler's solution internally were administered. The former was soon replaced by one of 2 per cent. chrysarobin, which was gradually increased to one of 4 per cent. Within four weeks the patient's condition had improved very much and the patient left the hospital, but remained under observation another month. He was demonstrated before the Chicago Dermatological Society before treatment was begun, and again two months later, when his legs were greatly improved. The patient then absented himself and was not seen again for about fourteen months, during which time he had received no treatment. His condition had remained the same as it was at the second demonstration. On further treatment on the same line as before, his skin was healed completely within about a couple of months, leaving intensive pigmentation.

CONSIDERATION OF THE IDENTITY OF THIS CASE WITH LICHEN PLANUS

Inasmuch as this case seems to deviate in clinical and anatomic respects from the typical form of lichen planus, the question of their identity may be discussed. In the commonly occurring type the following symptoms are noted: The eruption is generalized and consists of mostly solitary lesions which later may increase in size or coalesce. They are pinhead-sized, and larger, flat, angular papules of pale, dark yellow, pink or livid color. They are smooth, dull or shining and may show central pitting. After some time they gradually become brown and squamous, the central depression is no more visible, and they heal, leaving dark brown pigmentation. There may be more or less intensive itching in the beginning of the disease. The histologic features of a recent papule are:[2] The epidermis in all its layers is thickened. The prickle cell layer shows intracellular and intercellular edema, especially in its lower portion, where some of the cells contain vacuoles. Here are also noticed round cells and lymphocytes penetrating from the papillary layer. The pigment is not increased. The epithelial projections are broadened and elongated. There is a dense infiltration in the form of irregular groups or rows of cells in the papillae and in the subpapillary layer. At the latter it ceases quite abruptly, except that from here may descend rows of cells sheathing blood vessels and ducts of sweat glands. The collagenous tissue of the corium is partly hypertrophied, the elastic tissue normal. The blood vessels and lymphatics are dilated.

All these details, I wish to repeat, are symptoms, as found at a stage when the disease has reached its height of development. With the decline of this inflammatory process, however, the picture changes. There is an increase of pigment in the epidermis. The edema within the prickle cell layer subsides. The blood vessels and lymph spaces are contracted. The infiltration gradually diminishes, although it remains to its last traces limited mostly to the papillary and

2. For illustration and description see Lieberthal, David: Lichen Planus of the Oral Mucosa, THE JOURNAL A. M. A., Feb. 16, 1907, p. 559.

subpapillary layers. In other words, we find in a later stage of typical lichen planus conditions which were also to a great extent encountered in our case, which likewise represents in respect to findings and history, a later, that is, a retrogressive stage. The lesions in the mouth of our patient were typical of lichen planus, and the treatment perfected a cure within a reasonably short time.

Fig. 3.—Microscopic section of atypical lichen planus; low power.

The really unique features of our case were, first, the close arrangement of the very copious lesions to each other without any apparent coalescence, although microscopically there were all indications of such, and secondly, the limitation of the affection to the tibial regions and the mouth. The same limited situation is recorded in a number of cases of another aberrant type, namely, lichen planus hypertrophicus.[3]

How much the localization might have had to do with the retarded circulation in the lower extremities of the old man, it is difficult to say. It may be possible that the lichen was latent in the patient and was incited by the severe itching and scratching, and thus developed in places of minor resistance. The question, if the vesicles and pustules which were observed before and at the examination had anything to do with the main process of lichen planus, must also be left open. In conclusion I wish to submit for my case, as announced in the title, the designation "shinguard" type of lichen planus or "lichen planus ocreaformis."

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ABSTRACT OF DISCUSSION

Dr. A. Ravogli, Cincinnati: We should not lose sight of the fact that the eruption does not always come in the form of papules the size of a small pin head or split pea, with the peculiar conformation given in the text books, but sometimes as an erythematous condition covered with little scales, which we call lichen planus miliariformis. We also have a type known as lichen planus atrophicus. The histologic report of Dr. Lieberthal is very important. There are, of course, in this disease various stages of progress: the lesions may or may not improve for a time. The inflammation and hyperemia in some cases reach such a point with exudation that vesicles are formed. I had a case referred to me by Dr. Ravitch in which the bullae were so large that the condition was easily confused with dermatitis herpetiformis or pemphigus, but it proved to be a simple case of lichen planus bullosus. The presence of bacteria and staphylococci may produce pustules. The patient, to relieve his itching, naturally scratches, and this exposes the mucous layer of the epidermis, giving the staphylococci, which are ubiquitous, an opportunity to find a lodgment and produce pustules. Sometimes lichen planus is associated with eczema, and the latter may prove very stubborn on account of the condition of the skin produced by the lichen planus.

As to the treatment of lichen planus, I usually give calomel in small doses until free catharsis is produced. Arsenic gives excellent results in some cases and when the itching is severe it can usually be relieved by a single injection of cacodylic acid. After the involution of the lichen planus lesions, stains of pigment are left by the effused blood that often occurs in the papules, and in some instances the skin remains atrophic. This is actually a scar condition which in some instances remains stained by the coloring matter of the effused blood.

Dr. Fred Wise, New York: I have never seen a case resembling this one. The eruption on the lower limbs was probably altered by the presence of varicose veins, which may have produced this unusual verrucous appearance. The histopathologic picture is almost pathognomonic. At the Vanderbilt Clinic recently we have taken cases of dermatoses of unusual character and examined numerous slides, and from the histopathology alone we should have made a diagnosis of lichen planus, but the cases showed no clinical or etiologic relationship to that disease. We cannot, therefore, rely entirely on the histopathology in making the diagnosis. Of the etiology of lichen planus we know even less than we do of that of eczema. The idea held by French dermatologists that it is due to a neurosis is absurd. We may see it in a dock laborer or in a man who shows absolutely no neurotic taint, as often as in neurotic, city bred women. Lichen planus of the lower extremities, especially, has probably no connection with a neurosis. It is much more likely

Fig. 4.—Microscopic section of atypical lichen planus; higher power.

3. Lieberthal, David: Lichen Planus Hypertrophicus, The Journal A. M. A., Jan. 11, 1902, p. 93. Sutton, R. L.: The Symptomatology and Treatment of Some Variant Forms of Lichen Planus, The Journal, A. M. A., Jan. 17, 1914, p. 175.

due to some bacterial infection, but that theory has not been proved.

DR. RICHARD L. SUTTON, Kansas City, Mo.: So far as I know, the diagnosis in this case lies between some form of lichen planus hypertrophicus and lichen chronicus simplex. Clinically, the latter condition can be ruled out, and by exclusion we have only hypertrophic lichen remaining. The symmetric distribution of the lesions and the histopathology are against the diagnosis, but, as previously stated, the case more nearly resembles this affection than any other hitherto described. With respect to the etiology of lichen planus, I would like to call attention to Hazen's discovery of a spirochete in a typical case of the disorder two years ago. The results of the work of Fordyce, Engman and Mook and others would indicate that we are dealing with a systemic infectious disease, and the results of my own observations go far toward convincing me that the disease is spirochetal in origin. The organism may be fast to some forms of arsenic (as salvarsan), but it is not fast to others, such as liquor potassii arsenitis; consequently this property would not preclude its belonging to the spirochetes. Dr. Lieberthal's appellation for the condition as exemplified by the case in question is both euphonious and appropriate.

DR. H. H. HAZEN, Washington, D. C.: As to the presence of the spirochete in lichen planus, I had a second case this winter in which I found very short spirochetes in the serum expressed from the lesions of lichen planus. This was a case in which there were small vesicles surmounting the papule, from which the serum was expressed. We are not in a position to say that we have demonstrated the fact that the spirochete is the cause of lichen planus, but our observations may induce other men to try to confirm them.

DR. WALTER J. HEIMANN, New York: I agree with the statements made by Dr. Sutton. I have the impression that lichen planus is due to the spirochete in spite of the fact that many cases of lichen planus have been treated with salvarsan without effect.

DR. LLOYD W. KETRON, Baltimore: In regard to the etiology of lichen planus, I had a case in which the condition showed a linear arrangement on the forearm following the course of one of the cutaneous nerves; as a therapeutic measure I cut the nerve, producing a narrow area of anesthesia on both sides of the lesions. This did not cause any improvement of the disease, which is suggestive that the condition was not associated etiologically with the nerve.

Plaster of Paris.—According to the *Jour. Pharm. Chem.*, which discusses the effect of various substances in the accelerating of the hardening of plaster of Paris, the various electronegative elements have not an identical action. For the same base, the salts of the strongest acid have the greatest activity. Electropositive elements behave in a similar manner; the strongest base most energetically accelerates the time of setting. The substances which modify the solubility of the plaster also modify its time of setting. Salts which increase the solubility accelerate the hardening; substances which decrease the solubility retard the setting.

CARCINOMA OF ESOPHAGUS WITH PERFORATION OF AORTA*

MOSES BARRON, B.S., M.D.
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While carcinoma of the esophagus is by no means of infrequent occurrence, the case here described presents a particularly interesting complication. Although statistics vary, it is estimated that from about 5 (von Häcker) to 9 per cent. (McRae) of all cancers are esophageal. Cancer is by far the most important tumor of the esophagus.

REPORT OF CASE

P. V. H., man, aged 58, admitted to the City and County Hospital, St. Paul, June 13, 1915, complaining of inability to swallow any solid food, stated that about two months before his admission a portion of meat which he had attempted to swallow seemed to lodge in his gullet and would not pass down into the stomach. He attempted to wash it down with a glass of water, but this resulted in both water and meat regurgitating through the nose and mouth. There was no pain present at this time. After this incident he was unable to swallow solid foods of any kind. The ingestion of acids, alkalies or other corrosive poisons was denied. Approximately eight months before this incident a fish bone had stuck in his throat, but after its dislodgment he had experienced no further trouble.

Fig. 1.—Lower half of esophagus opened, showing the ulcerated tumor mass. The perforation is at the mass of blood clot (*c*). The darker portion at the bottom is the cardia of the stomach.

Shortly before his admission, a slight, dull pain appeared under the lower portion of the sternum; this would come on shortly after rising in the morning and disappear during the day. Although his appetite had continued good, his weight had steadily decreased from its normal level of 230 pounds to 190 pounds at the time of admission to the hospital. There was no history of tuberculosis or cancer in the family.

During his stay in the hospital, several attempts to introduce the stomach tube failed completely. Examination of the urine presented no abnormal features. The Wassermann reaction was negative. Stools, July 31, gave a strong reaction for occult blood. Report on fluoroscopic examination of the stomach on June 18 reads as follows:

> The bismuth meets an obstruction at the lower part of the esophagus which bulges out the esophageal wall into a pouch from which bismuth can be seen flowing into the stomach like the sand in an hourglass.

A second fluoroscopic examination, July 22, gave a similar result. In order to eliminate the possibility of functional spasm, which had been suggested as an explanation of his symptoms, a hypodermic injection of 1/100 grain of atropin was given during the fluoroscopic examination without in any degree changing the result.

* Read before the Minnesota Pathological Society, Oct. 19, 1915.

* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the reprints, a copy of which will be sent by the author on request.

* From the Department of Pathology, Bacteriology and Public Health, University of Minnesota Medical School, Minneapolis, and Pathological Laboratory, City and County Hospital, St. Paul.

Temperature and pulse remained about normal. A few days before death the patient complained of pain in the abdomen. Seven hours before his demise he had a slight hemorrhage from his mouth. He became cyanosed, and his pulse perceptibly weakened. Three hours later there occurred a second hemorrhage with marked diminution of the patient's strength. The patient died fifteen minutes after a third hemorrhage.

Fig. 2.—Same mass as in Figure 1, but seen from behind, showing the aorta. At *d* are the two perforations of the aorta. At *e* is a mass of enlarged infiltrated lymph nodes, seen also in Figure 1 *e*.

I performed the necropsy fifteen hours after death. The essential features of the postmortem findings are as follows:

The body is very well developed and fairly well nourished. Opening the peritoneal cavity revealed the stomach and duodenum enormously distended, and discolored by their contents a dark purplish hue. The stomach, on being opened, is found to contain about 4 liters of fluid and clotted blood. The duodenum and intestinal tract also contain large quantities of fluid and clotted blood which, in the lower portion of the bowel, are tarry in color and consistence. The lower half of the esophagus presents a tumor mass which on its posterior surface infiltrates the aorta, near the junction of the transverse and descending portions of the arch. Several lymph nodes at the bifurcation of the trachea are enlarged to about the size of hazelnuts, firm in consistence, and of grayish color on cross section. A large nodular tumorous mass (Fig. 1, *e*), about 5 cm. in diameter, lies in the region of the lesser curvature of the stomach. On cross section this mass has a softened necrotic center, semifluid in consistence and yellowish in color. The posterior surface of the left lobe of the liver lies in contact with this mass, and is adherent to it in two places. Over these areas the capsule of the liver is apparently infiltrated, and on section this line of infiltration averages about 2 mm. in thickness.

The esophagus, trachea and aorta are removed *en masse*.

When the esophagus is opened, the lumen of the lower half (Fig. 1) is found irregular, nodular, ulcerated, very ragged and necrotic, and reddish-brown. There is apparently no stenosis present. The involvement is annular, beginning just at the level of the bifurcation of the trachea and extending downward for a distance of 13 cm. The upper margin (*a*) is indurated, raised, and somewhat undermined. The lower margin (*b*) is irregular, and has a thickened overhanging edge, which on the average is about 1 cm. above the cardiac orifice, excepting posteriorly, where the uninvolved area tapers to a point about 5 cm. above the orifice. At the upper end of the tumor posteriorly, a small ragged mass of blood clot (*c*) infiltrates the necrotic wall. Opening of the aorta (Fig. 2) reveals two small necrotic areas (*d*), each about 5 mm. in diameter and about 1 cm. apart, situated 3 cm. distal to the scarring of the obliterated ductus arteriosus. These necrotic areas, on being carefully probed, are found to be perforations communicating with the posterior wall of the esophagus in the region of the aforementioned adherent blood clot.

Microscopically, the tumor is composed of a very loose connective tissue stroma through which are scattered epithelial cells arranged in small groups, cords, and interlacing bundles, showing extensive cornification. These collections of cornified epithelial cells, though very numerous, are individually very small, and the "epithelial pearls" thus produced differ from the "pearls" in skin cancer not only in their smaller size but also in the less complete cornification of the centers. There is almost complete destruction of the muscular layers of the esophagus throughout the entire extent of the tumor. Areas of necrosis are numerous, and around these there is an extensive infiltration of both polymorphonuclear leukocytes and lymphocytes. Section of the aorta at one of the points of perforation (Fig. 3) shows marked necrosis accompanied by leukocytic infiltration of all three coats. An extensive exudate of fibrin, leukocytes and bacteria is present on the adventitia (*f*). The intima shows various stages of degeneration and necrosis, accompanied by infiltration of numerous leukocytes (*g*). In these necrotic areas there are present an exceedingly large number of bacilli, which resemble morphologically the Oppler-Boas type.

Fig. 3.—Low power photomicrograph of section taken at point *d*, Figure 2. The perforation is at the lower edge. At *g* only the intima is present. It is necrotic and infiltrated with large numbers of bacilli. The media and adventitia are entirely destroyed. At *f* is a layer of exudate on the adventitia composed of fibrin, cellular debris, leukocytes and bacteria.

COMMENT

Just as in all cancers which are exposed to infection, the presence of secondary processes in this case seems to have contributed largely toward bringing about the final fatal outcome. It is rather noteworthy that in the microscopic sections relatively few tumor cells can be found invading the adventitia of the aorta (*h*), while the media and intima are apparently

Fig. 4.—High power photomicrograph of section shown in Figure 3, showing the slight carcinomatous infiltration of adventitia at *h*. The inflammatory exudate is seen at *f*.

entirely free from invasion. Since the amount of infection is relatively great, and the amount of cancerous infiltration small, it is logical to conclude that the destructive inflammatory processes which accompanied the ulcerating tumor greatly contributed in bringing about the final perforation of the aorta. To these factors, of course, must also be added the results of the blood pressure within the aorta and the destructive effects of the boluses of food passing down the gullet.

It certainly appears true, however, that, in this location, serious sequelae may result from cancerous infiltration, which is relatively much less extensive than that necessary to bring about equally grave results, for example, in the stomach or intestines. This may be explained by the fact that, in the latter organs, the infective processes are accompanied by a greater protective reaction on the part of the connective tissues.

A View of Christian Science.—Christian Science was the offshoot of an abnormal mind which grasped a few of the basic facts of the good influence of hope and faith, seized on these well-recognized cardinal principles of psychotherapy and, by a species of logic of the most illogical kind, erected thereon a superstructure which violated all the tenets of sound reason. It must never be forgotten that this superstructure was built of materials, the chief of which were faith and hope. Everything else was discarded. Whatever was pleasant was given space; whatever was unpleasant was denied space. Unrealities, if pleasant, were eagerly sought; realities, if unpleasant, were cast away. The result was a marvelous structure, a psychologic palace of straw. The wondrous thing is, not that the founder of Christian Science could conceive and erect such a structure, but that she could get such vast numbers of followers to subscribe to her labors, to accept the structure, to surround and house themselves with similar mental architecture.—*Northwest Medicine.*

NEW METHOD OF INJECTING FACIAL NERVE FOR RELIEF OF FACIAL SPASM *

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PHILADELPHIA

Because of the rather confusing definitions found in text-books, particularly those of a few years ago, I shall give a brief differential diagnosis between facial spasm and tic or so-called habit spasm before describing the treatment. A second purpose in doing this is that the treatment of the two affections is entirely different, and while alcoholic injections are ideal in cases of facial spasm, they are contraindicated in tics.

True facial spasm is a reflex act occurring in a single muscle or a group of muscles, and is thought to be due to some form of irritation in the muscles or the nerves of the spinal or bulbar arc. Tics, on the other hand, are voluntary contractions which have become a habit. It is a psychoneurosis and it is not a spasm at all. Braissard believes that the synergic and coordinated muscular contractions of tic imply a cortical origin.

In facial spasm, the spasm is confined to the mechanism of the motor innervation of the face, and is devoid of voluntary or involuntary control; whereas in tics, the movements are always more or less under the control of the will, and subject to involuntary control under violent excitement or emotion.

The spasm of the true facial type is never a natural movement, and cannot be imitated either by the patient

Fig. 1.—Showing needle in proper position.

or by a second person. In tics, the movement, however exaggerated, is a natural one and can be imitated. As Patrick once said, "In spasm the movement is an anatomical disorder, in tics, a physiologic one."

At the onset of facial spasm, the spasm may be confined to only a part of a muscle. Later it takes the entire distribution of the facial nerve and no more, and is practically always unilateral.

* Read before the Section on Nervous and Mental Diseases at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

Tics never involve only a part of a muscle, and rarely involve all the facial muscles at any given time, but take associated groups of muscles, varying these from time to time. It is often bilateral.

Facial spasms are painful, and incapacitate their victims, whereas tics give a certain pleasure or sense of relief, and never interfere with any of the bodily functions, as talking.

Spasms are found in the mentally strong, tics in the neuropathic type of persons in whom other mental stigmata exist.

Fig. 2.—Showing needle in position on skull.

There is another form of tic occurring after facial palsy in which the tic is synchronous with the winking. In this form, likewise, injections should never be made.

ALCOHOL INJECTION

My reasons for devising a new method for injecting the facial nerve are two:

1. The older methods are inaccurate (often requiring as many as ten punctures to hit the nerve).

2. The methods are dangerous, that is, the jugular vein is very apt to be hit.

I formed these conclusions after careful clinical observations and performing 300 injections of the facial nerve at the stylomastoid foramen on cadavers.

Through the courtesy of Dr. Greeman, I made a series of measurements at the Wister Institute. On fifty skulls, the distance between the stylomastoid foramen and that of the jugular varied from 0.2 to 1.2 cm., the average distance being 0.6 cm.

One can readily see how in the older method of simply holding the needle in a horizontal position and inserting the point into the stylomastoid foramen, that less than 0.5 cm. separates the point of the needle from the jugular vein.

Because of these difficulties and dangers, I devised a method whereby it would be impossible to hit the jugular vein, and yet permit one accurately to inject the nerve at its foramen of exit from the skull.

THE METHOD

The needle (trochar and stylet style) is 10 cm. long and 0.4 cm. thick, graded in centimeters. It is inserted at the angle of the jaw (the skin having previously been painted with 5 per cent. tincture of iodin and anesthetized with 0.5 per cent. novocain), and directed backward and upward until the point impinges on the base of the mastoid. The operator can make certain of this by feeling the point under the skin by the index finger, which is held over the mastoid.

The handle of the needle is elevated, and the point is depressed, the operator feeling carefully the way down, at the same time pushing the point backward and inward until the needle feels its way into the stylomastoid foramen.

The stylet is now removed. If any bloods flows out, no injection should be made, as the point may have pierced a small vein. The needle is withdrawn, cleaned, and another puncture made. If no bleeding occurs a few drops of alcohol are injected. If the nerve is hit succesfully, immediate facial paralysis occurs. About 2 c.c. more of alcohol are now injected.

The needle is removed. No dressing is needed.

As a rule, the patient complains of some pain, which is relieved by hot compresses.

The eye should be protected by goggles and washed out with boric acid solution at least twice a day.

For some little time after the injection, goggles should be worn when the patient is outside the house.

This differs from the fifth nerve injection in that we have no trophic changes or corneal ulcers. We must, however, remember that because of the paralysis, winking does not occur; hence the cornea is apt to become dry, owing to lack of proper irrigation from tears.

Moving the eye from the side and gentle massage will help to prevent any deleterious results. The face should be massaged daily to prevent atrophy of the muscles.

The method of injection appears to me to be extremely simple, and one or two hours' practice in the dissecting room to train the fingers in the sense of touch, a feature so essential in all injection methods, will render any physician proficient.

I have found from my records that the average depth of the needle was 5 cm.; but the distance varies according to the point of insertion and the amount of

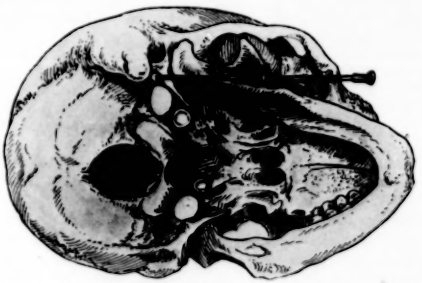

Fig. 3.—Note how the styloid process prevents the needle from going too far inward, thus preventing any possibility of hitting the jugular vein.

adipose tissue present on the face of the person injected.

By this technic, the entire distribution of the seventh nerve is paralyzed.

I have on several occasions injected one of the branches of the seventh nerve going to one or more muscles by injecting the branches anterior to the parotid gland.

It is much more difficult to inject the branches as the plane of the nerve must be hit, as alcohol does not diffuse through facial planes.

The results from the injection of the branches do not compare as favorably as those obtained by injection at the stylomastoid foramen. It appears as if it were necessary to rest the entire distribution of the seventh nerve to effect a perfect result.

RESULTS AND CONCLUSIONS

1. Most patients will willingly exchange a spasm for a paralysis.

2. The paralysis is only temporary. Voluntary motion slowly returns until complete function is restored.

3. The spasm never recurs at the time of the return of voluntary power, but varies from a month to several years. In some cases, it never recurs.

4. In the event of spasm recurring, patients are willing to have the injection repeated. (Return of power is slower with each subsequent injection.)

5. For injection at the stylomastoid foramen I use 2 c.c. of 70 per cent. alcohol; for injection of the branches, not over 50 per cent. alcohol, because of the danger of sloughing, which is prone to occur from the superficial injections in the loose fatty areolar tissue.

2025 Walnut Street.

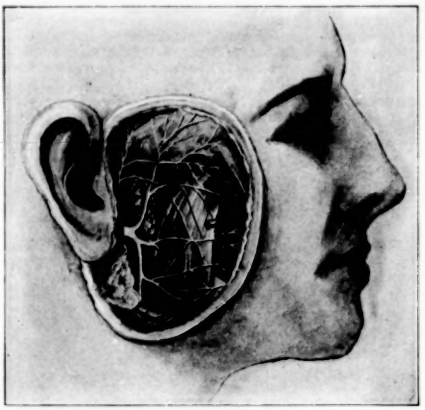

Fig. 4.—Distribution of facial nerve. Note the difficulties offered to the injection of the branches.

ABSTRACT OF DISCUSSION

DR. HUGH T. PATRICK, Chicago: I am not in absolute accord with Dr. Dorrance's statement that tic never should be injected, although I have expressed the same opinion. But in saying this I do not mean at all that the differential diagnosis between tic and spasm is not perfectly distinct. They are not related affections at all except geographically. But I have been guilty of injecting one case of bilateral tic which was not in any sense a spasm. The patient was a commercial traveler, and he said this tic was ruining his business. He had an unusual, almost constant bilateral grimace which affected his eyes and the lower part of his face as well. I explained to him what this injection would do—that it would paralyze both sides of his face, and added: "There is absolutely no use injecting one side because then you would have paralysis of one side of the face and tic on the other side, when you would be more of a spectacle than ever." And he said, "For heaven's sake, do it!" I injected both sides, and, peculiarly enough, I struck both nerves on the first attempt. The result was startling. His face was absolutely devoid of expression, he could only partially close the eyes and he could not articulate any of the labials well. But strange though it may seem, the man preferred that condition to his tic. Fortunately the one injection was not very successful and he began to have some movement on one side in a day or two. Dr. Dorrance made one careless statement—that facial spasm is painful. It is not; it is tiresome, it is wearing, it is distressing, but not painful. I have often failed to reach the facial nerve, although I have in a measure approximated Dr. Dorrance's method by not any more going in at right angles to the face, but upward and backward. Even then I frequently have missed it. I entirely agree that the patients always prefer the paralysis to the spasm.

DR. A. L. SKOOG, Kansas City: I agree with Dr. Patrick that these facial spasms are not painful, but they are disagreeable to the patient. I wish to ask Dr. Dorrance if he has had any bilateral cases which he has injected by his method. I have under observation now one case of bilateral spasm which I injected the first time about a year ago, not the facial nerve, but the peripheral branches. The method I employed was to inject a number of times until I had secured what I thought was sufficient paralysis. On the first injection I obtained paralysis of one of the superior branches of the facial nerve, a complete paralysis which endured for a long time. The second series of injections was given about two or three months ago and again I obtained paralysis of the same branch. The result of the peripheral injections in this case has been quite satisfactory, except that it had to be repeated in about eight or nine months.

DR. JULIUS GRINKER, Chicago: I should like to ask Dr. Dorrance to what depth he inserts his needle.

DR. GEORGE M. DORRANCE, Philadelphia: I insert the needle about 5 cm., the exact distance depending somewhat on whether people are thin or fat. Some of my patients complained of this condition being painful, but perhaps they did not know how to explain it. The condition kept them awake, and they described the sensation as one of pain. Perhaps it was merely their way of describing the condition. According to the literature bilateral facial spasm is very rare. I have never seen a case. The results of this treatment have been very satisfactory, for by this means we give the whole nerve rest. I would warn against the injection of too strong a solution of alcohol under the skin. In experimental work we have had a lot of sloughing of superficial fat and skin from using 90 per cent. alcohol and some dogs have died. If you inject a solution of about 50 per cent. strength you will not get sloughing of the superficial fat and skin.

Combating Insects Which Affect Health of Man.—The Bureau of Entomology of the U. S. Department of Agriculture reports that in mosquito investigations in Louisiana a species of mosquito hitherto considered a noncarrier of malarial infection was proved to be a carrier. Studies have been made of malaria and measures are being evolved to meet plantation conditions.——The "starvation" plan, aimed to exterminate the spotted fever tick of the Bitter Root Valley, Mont., was followed during the year with encouraging success. The plan consists of the removal of the domestic hosts of the adult tick from the infested areas. The bureau also conducted a campaign of extermination against ground squirrels and other rodent hosts of the immature ticks. Examination of the rodents killed showed 40 per cent. lower infestation by the tick than during the preceding year.——The report directs attention to the demonstrations of the bureau specialists that the breeding of flies in manure can be prevented by treating the substance with calcium cyanamid and acid phosphate, which at the same time increase the fertilizing value of the manure.——The bureau also conducted investigations into methods of lessening fly infestation in packing establishments operated under the meat inspection service of the department.

BILATERAL CHARCOT HIPS, OCCURRING SIMULTANEOUSLY

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This case is reported because Charcot's disease in both hips simultaneously is unusual, and to emphasize further the long period of latency of some syphilitic infections.

P. A. K., white man, aged 42, married, mechanic, examined, Nov. 3, 1915, gave negative family history. It is interesting to note that his wife had borne two children, now 12 and 13 years old, both in excellent health and showing no signs of hereditary syphilis. Also she had had one tubal pregnancy, which ruptured, and she was operated on with complete recovery. She continued in excellent health.

The patient had the usual infectious diseases of childhood, orchitis complicating a case of mumps, and hemorrhoids. He had gonorrhea twenty-five years ago with a nonsuppurative bubo. There was a single, "hard" chancre in 1891; no secondaries were noticed. He was treated with "baths" and several months of a proprietary blood tonic, but no other medicine. He had always been in excellent health, served in the U. S. cavalry in the Philippines, and since being discharged worked as an automobile mechanic. He used a great amount of tobacco and previously drank to excess. He had never had a skin lesion or an ulcer.

During the fall of 1912, he began to have "rheumatic pains," limited to the areas below the knees, these pains occurring only at night and usually along the inner side of the tibia. They occurred intermittently for about one year, and without any treatment other than the "baths," he became apparently well.

During the winter of 1914, after being exposed to a great deal of damp weather, these pains returned, always confined below the knees, and of a numb, dragging character. This attack lasted about one month with apparent complete recovery without medication or attention by a physician.

In June, 1915, the pains began again, confined to the same area, with the addition that the muscles now felt as if they were drawing. In August the pains became jumping, shooting and dartlike, extended up into the thighs for the first time. The pains were almost unbearable. Now also for the first time he noticed a slight grating noise in the left hip, though he never had any pain there. Until now the patient was in no way markedly disabled, as he worked at his trade from fourteen to twenty-two hours a day. Coincident with the grating in his hip was a weakness which forced him to use a cane but did not keep him from work.

One night late in August, while making an overland trip, he went to sleep in his car, and slept there all night. When he awoke his left leg felt "asleep," and he never since had had use of that leg.

In September, 1915, shooting pains started in the right thigh, which swelled to twice its normal size, but at no time did he have any fever, chill, or any pain or soreness about the hip. Since that time (one month after the left thigh became useless), he had had no use of the right leg.

During October he had had what he described as "a feeling of pressure toward the center at the waist." Lately he had had trouble in starting and controlling the flow of urine. The bowels were normal, he ate and slept well, and sexual findings were normal. At no time had he had any treatment except what he himself had taken for his so-called "rheumatism."

Left and right hips of patient.

I was called to examine the patient, Nov. 3, 1915, at which time the patient, 5 feet 9 inches in height, weighing about 175 pounds, was unable to walk or stand erect. The legs were unable to support the trunk. When attempting to walk with crutches, he supported the weight of the body on his arms. He swung the legs too far forward in a hemiplegic swing, but his toe struck the ground before the heel.

He was well oriented in space, and knew the whereabouts of his limbs and feet at all times, with normal coordination of his arms and hands. The right epitrochlear and inguinal glands on both sides were enlarged. He was extremely hypersensitive all over the body, but especially on the feet, legs and abdomen. The muscle sense of location and identification was normal. He could distinguish sharp from blunt objects, and heat from cold.

The abdominal and cremasteric reflexes were increased; the knee-jerks were lost, though an occasional suggestion was obtained on the right. The Achilles tendon jerks were lost. No Gordon or Oppenheim reflexes were obtained, and the feet were too sensitive to interpret either the Babinski or Chaddock signs. There was no ankle or patellar clonus. The pupils were irregular in outline and about equal in size; both reacted to accommodation with little or no reaction to light.

Ophthalmoscopic examination made by Dr. E. L. Lindsey revealed the tension normal; chamber normal; retinal illumination good; nerve head slightly diminished in size; edges well defined but choroidal ring not well marked; color white with slight bluish cast; minute blood vessels absent; a slight saucer-like excavation.

The tongue, central, showed no tremor. The facial contraction was normal; there was no defect of speech or writing; the patient could flex the left leg and rotate it; he could not flex the right leg, nor could he accomplish internal rotation; the left trochanter could easily be pushed up under the skin with the feeling that the joint was completely luxated; to a less degree this could be done with the right hip; in doing this one obtained a pronounced grating in both hips.

The roentgenograms taken by Dr. C. Wood showed the true condition. The heads and necks of both femurs were gone. Let me mention again that all this destruction of bone had at no time caused any pain at the point of destruction, either with hip motion or with attempt to support the body.

The diagnosis formulated itself: "Lightning pains," suggestion of girdle pain, beginning sphincter weakness, hyperesthesia, loss of knee reflexes, Argyll Robertson pupil and bone destruction without pain or temperature was assuredly beginning tabes with two Charcot hips.

I might add that at this time after a considerable amount of treatment with mercury, iodid and arsenic, the grating is practically gone, hyperesthesia is diminished, and there are no bladder symptoms. We are treating him in view of later attempting to make new hip joints, if we can obtain a negative Wassermann reaction.

This man had a chancre in 1891. He noticed no secondaries, and his history showed no syphilitic manifestation from that time until 1912, a period of twenty-one years. During this time he had maintained an excellent musculature, had married, and had an apparently healthy family above the average intelligence, illustrating a true latency of twenty-one years.

Charcot joints are evidently not sufficiently common, as they are usually treated along with the beginning tabes as a rheumatism, as was this man's misfortune.

COAGULATION TIME IN LOBAR PNEUMONIA

WITH STATISTICS AND AN EXPERIMENTAL STUDY OF ITS CAUSES *

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AND
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The etiologic factors concerned in coagulation of the blood are still imperfectly understood.[1] It is common knowledge that the time necessary for coagulation to occur is variable and depends on many conditions. That bacteria and their toxins play a rôle in the coagulation process is undoubted, but their significance is not definitely known. Nevertheless, the subject of the relation of infection to coagulation has been discussed by not a few modern writers, and, on the whole, the weight of authority is in favor of the view that infectious diseases retard coagulation.

certain diseases, especially those accompanied by inflammatory exudates (as lobar pneumonia and pleurisy), a marked pathologic increase up to 1 per cent. or over may be found. In certain infections, notably typhoid fever, no increase is observed, although intravascular clotting is more common in this disease than in lobar pneumonia, if we except the large so-called marantic thrombi found in the great vessels after death.

That the quantity of the fibrin factors has nothing to do with either extravascular or intravascular clotting is further shown by the fact that they are present in normal amount in hemophilia (Litten, Sahli).

The coagulation time is found to be shortened after hemorrhage (severe pulmonary hemorrhage, hematuria), in carcinoma of the uterus, in abortion, after transfusion, in endocarditis, in dementia praecox and after the administration of gelatin.

A considerable number of tests to determine the coagulation period of the blood, most of them accurate enough for ordinary purposes, have been advanced.

TABLE 1.—COAGULATION TIME IN LOBAR PNEUMONIA

Case Number	Age	Sex	Average Coagulation Time		Average Leukocyte Count Before Crisis	Termination	Remarks
			Before Crisis	After Crisis			
			Min. Sec.	Min. Sec.			
1. M. P.	19	Male	3 55	.. ..	21,200	Death	Developed pneumothorax
2. F. T.	41	Male	6 25	5 50	17,100	Death	Crisis on ninth day; empyema on thirteenth; operation; pneumococcus and streptococcus infection of pleura
3. M. D.	53	Female	4 40	4 45	19,400	Recovery	
4. J. H.	47	Female	4 ..	.. ..	24,600	Death	
5. J. G.	37	Male	3 ..	2 30	15,500	Recovery	Ether pneumonia following enucleation of eye
6. M. R.	14	Female	7 40	2 40	26,000	Recovery	
7. M. K.	22	Female	3 5	4 5	18,000	Recovery	Marked dry pleurisy; delirious for day or two after crisis
8. R. C.	23	Female	2 30	.. ..	22,200	Death	Pneumonia beginning during labor; no crisis
9. W. P.	18	Male	3 ..	3 30	16,000	Recovery	
10. S. P.	23	Female	3 35	4 50	20,800	Recovery	Pregnant about 7½ months
11. J. D.	55	Male	2 25	.. ..	12,400	Death	Complicating delirium tremens; coagulation test on day of death
12. E. G.	21	Female	3 45	.. ..	7,800	Recovery	Aortic regurgitation and serofibrinous pleurisy; no complications
13. H. D.	67	Male	3 45	3 30	18,000	Recovery	
14. G. B.	35	Female	1 ..	3 05	15,400	Recovery	
15. T. H.	17	Male	1 40	4 20	18,100	Recovery	Healed tuberculous bone lesion
16. L. R.	19	Male	2 50	4 55	17,800	Recovery	Crisis delayed to eighteenth day by migration to opposite side
Averages	32	.....	3 15	4 ..	18,200		

The coagulative process is known to be a complex one involving in its first stage the action of thrombokinase on prothrombin in the presence of soluble calcium salts producing thrombin. The blood plasma also contains a protein, fibrinogen, which is acted on by the thrombin when blood is shed, forming fibrin. It has been definitely shown that the plasma within the blood vessels differs from the serum resulting from coagulation in that it contains fibrinogen, unlike the latter.

In pneumonia, it has long been currently stated, although denied by some recent writers, that the coagulative period is shortened, owing to the richness and density of the fibrin network. The fibrin factors of the blood are greatly increased in this disease, "the proportion rising from 4 to 10 parts per thousand."

When normal blood coagulates, "about 0.1 to 0.4 per cent. of its weight separates as fibrin" (Krehl[2]). In

The method employed by us is known as Boggs' test. In taking specimens of blood from healthy persons and also from subjects ill of pneumonia, the finger tips and ear lobes, mainly the former, were used. The parts were thoroughly cleansed with water, followed by alcohol, and then allowed to dry and the puncture made deep enough to cause a free flow of blood.

Lee and White[3] have pursued the method of withdrawing 1 c.c. of blood from an arm vein, using a small all glass syringe (for example, Burroughs Wellcome & Co., 20 m.), preferably with a platinum needle, this syringe having first been sterilized and rinsed out with normal salt solution. This method "obviates the contact of blood with tissue juice," which contains thrombokinase. Our observations were made daily in order to obtain an accurate average coagulation time, and it was feared that an unwarranted degree of discomfort would be caused by venipuncture at intervals of twenty-four hours in patients suffering from lobar pneumonia.

We have endeavored to throw a side light on the question of the duration of the coagulation time in

* Read before the Association of American Physicians at Washington, D. C., May 11, 1916.

1. With thrombosis and agglutination — processes which are more or less closely allied to coagulation — the present discussion is not directly concerned. A comprehensive investigation of the subject of "Prothrombin and Antithrombin Factors in the Coagulation of Blood" has been made and reported on by Minot, Denny and Davis (Arch. Int. Med., January, 1916, p. 101).

2. Krehl: Clinical Pathology, 1907, p. 169.

3. Lee and White: Am. Jour. Med. Sc., April, 1913.

lobar pneumonia, and in order to accomplish this object, an examination of both pneumonic and normal bloods was made; the same method having been employed in both cases.

Table 1 sets forth the age, sex, average coagulation time before and after the crisis and average leukocyte count of sixteen cases of pneumonia treated during the past winter in the Medico-Chirurgical Hospital. The coagulation time was noted daily both before and after the crisis, and then the average duration carefully estimated.

The total number of observations was 138, and the coagulation time ranged from one minute to six minutes and twenty-five seconds. On the other hand, 100 tests on healthy individuals showed that the coagulation time is distinctly longer in them than in lobar pneumonia, the mean difference being one minute and fifty-five seconds.

Rudolph and Cole[4] made forty-seven observations in seventeen cases of lobar pneumonia and found the average clotting time to be 8.1 minutes, but it ranged from 5.5 to 12.75 minutes.

The effect of mealtime was also noted in two series of 100 healthy subjects each, and it was found that the coagulation time was only twelve seconds longer in the series of 100 cases tested two or more hours after food, thus showing that this period is only slightly influenced by the ingestion of a meal.

TABLE 2.—CALCIUM, MAGNESIUM AND IRON IN HUMAN BLOOD* CALCULATED AS CaO, MgO AND Fe

Mark	Age	Diagnosis	Blood, Gm.	CaO, per Cent.	MgO, per Cent.	Fe, per Cent.
Dr. B.	24	Well	19.9202	0.0084	.....	.....
Dr. T.	27	Well	10.2504	0.0077	.....	.....
Um. 2	25	Primary	35.4651	0.0072	0.0045	0.0345
Um. 3	22	Latent	36.2109	0.0062	0.0063	0.0518
Um. 4	21	Tertiary	29.9138	0.0077	0.0065	0.0459
Um. 5	24	Secondary	32.5527	0.0065	0.0071	0.0508
Um. 6	24	Herpes	26.6707	0.0073	0.0065	0.0489
Average				0.0073	0.0062	0.0564

* From well persons and syphilities (all men) in good general health; right median venipuncture.

To account for the abbreviated coagulation time in pneumonia, as shown by these statistical results, the question naturally arises, Does the action of the pneumotoxins circulating in the blood transform prothrombogen (normally found in the walls of the blood vessels and in the lymph nodes) into thrombin, or, in some manner other than this, modify the factors which govern coagulation? So far as concerns the laboratory evidence, however, this query can be answered in the negative.

It has been suggested that the thrombokinase which is present in the walls of the blood vessels may gain access to the circulating blood, owing to an injury of either bacterial or toxic nature of the arterial walls, and thus become a factor favoring the process of coagulation. This assumption, however, is not supported by known facts.

Langstern and Mayer[5] contend that the leukocytosis of pneumococcus infections is often attended with a decided increase of fibrinogen held in solution by the plasma. According to Ott,[6] there is a direct relation between the number of leukocytes in the blood and the quantity of fibrinogen.

4. Rudolph and Cole: Am. Jour. Med. Sc., April, 1913, p. 481.
5. Quoted by Ott (Footnote 6).
6. Ott: Text-Book of Physiology, p. 205.

Mott,[7] Krehl[8] and others hold that a certain parallelism (by no means strict, however) between the number of leukocytes and the amount of fibrin in the blood exists. Pfeiffer,[8] however, has pointed out that in leukemia the fibrin factors may not be increased at all.

It is to be recollected that fibrinogen is a protein of the globulin class, and when it comes into contact with fibrin ferment (resulting from the action of calcium salts on the thrombogen) either a molecular change takes place in the fibrinogen, or "it is broken up into an unimportant globulin and fibrin" (Hammersten[3]).

In suppurative processes, however, in which, as is well known, leukocytosis occurs, often to a marked degree, the coagulation time is not shortened; hence it may be safely inferred that an increased percentage of white cells contained in the blood alone is not the sole cause of the abbreviated coagulation time observed in pneumonia. Robertson, Duncan and Illman[9] were unable to show definite relationship between leukocytosis and the coagulation time.

The blood platelets very probably play an unimportant rôle in the formation of blood clot. On the other hand, Duke[10] has shown that they have more to do with the retraction of the clot than with its causation.

It is probable that to the disintegration of the white corpuscles in the drawn blood, fibrinogen (an end-product) owes its origin in a measure, at least. May not the extensive destruction of leukocytes in the exudate which occupies the lungs in pneumonia be a factor favoring the coagulative process in this disease? The white corpuscles contain a zymogen, known as prothrombin, which becomes thrombin through the action of calcium salts; hence it is conceivable that their widespread disintegration would liberate sufficient zymogen to hasten the coagulation time in this disease.

Here the question emerges, since the soluble calcium salts activate the prothrombin in the blood, Can the briefer coagulation time of the disease in question be justly attributed to an increased amount of these salts in the blood in pneumococcus infections? In the first place, it is to be noted that the soluble calcium salts are necessary only in the first stage of coagulation, that is, in the formation of the fibrin ferment.

It is also well known that a small quantity of the latter substance suffices to activate the fibrinogen, with the production of fibrin. If this is true, then it might be reasonably inferred that different degrees of coagulability of the blood are not dependent to any appreciable extent on the amount of fibrin ferment contained in this tissue.

On the other hand, in diseases in which the coagulation period of the blood is much prolonged, as in exophthalmic goiter, calcium salts are among the remedies employed with the object of shortening that period; but experimental investigations leave little doubt that in this manner not much available assistance can be given.

For example, while it has been asserted that the coagulation time has been shortened after the administration of calcium lactate, by certain observers, others, among them Myer Solis-Cohen,[11] contend that the

7. Mott: Wien. klin. Wchnschr., 1903, No. 44.
8. Pfeiffer: Zentralbl. f. inn. Med., 1904, No. 32.
9. Robertson, W. E.; Illman, G. M., and Duncan, H. A.: Coagulation of the Blood, THE JOURNAL A. M. A., May 16, 1908, p. 1583.
10. Duke, W. W.: The Pathogenesis of Purpura Hemorrhagica, with Especial Reference to the Part Played by Blood Platelets, Arch. Int. Med., November, 1912, p. 445.
11. Solis-Cohen, Myer: The Coagulation Time of the Blood as Affected by Various Conditions, Arch. Int. Med., December, 1911, p. 820.

effect of calcium salts in this respect is inconstant. Duncan administered calcium over long periods of time in a series of cases, and was not able to notice any decrease in coagulation time.

Rudolph and Cole,[4] after a series of careful studies, came to the conclusion that the "free exhibition of calcium lactate by mouth has no appreciable effect on the coagulation of the blood." Again, Van Lier noted the coagulation time in forty persons before and after the administration of calcium lactate, and arrived at the same conclusion.

We tested the blood of ten healthy persons; the administration of calcium chlorid (10 grains, three times a day) for three days was followed by an average shortening of the coagulation time of only fifteen seconds. In not a single instance was there more than a feeble effect produced by this calcium salt.

One of us (Meeker) conducted personally a series of chemical investigations into the question of the amount of calcium in the blood during attacks of pneumonia and also in that of healthy individuals, as well as persons suffering from other complaints, for purposes of comparison. The results obtained are indicated clearly in Tables 2 and 3. They show a striking similarity to one another; hence, it may be claimed that the calcium content of the blood does not, according to these observations, at least, exceed the normal amount, in pneumonia. That the results of these experiments, however, need confirmation is freely admitted.

TABLE 2.—CALCIUM, MAGNESIUM AND IRON IN HUMAN BLOOD* CALCULATED AS CaO, MgO AND Fe

Mark	Sex	Age	Blood, Gm.	CaO, per Cent.	MgO, per Cent.	Fe, per Cent.	Date
H. D. 1	M	67	19.3070	0.0070	0.0089	0.0423	3/ 9/16
H. D. 2	M	67	45.4400	0.0074	0.0065	0.0428	3/18/16
G. B. 1	F	35	42.7685	0.0054	0.0070	0.0380	3/14/16
G. B. 2a	F	35	48.5300	0.0078	0.0074	0.0288	4/ 9/16
G. B. 2b	F	35	43.6430	0.0082	0.0078	0.0424	4/ 5/16
T. H. 1	M	17	13.8500	0.0087	0.0067	0.0222	3/15/16
T. H. 2	M	17	38.4619	0.0080	0.0061	0.0263	3/16/16
T. H. 3	M	17	39.7680	.....	.....	.....	4/ 5/16
J. L.	M	20	20.2025	.....	Combined		4/ 5/16
THS JL	M	..	.....	0.0075	.....	.....	.....
L. R.	M	19	31.5000	0.0082	.....	0.0429	3/21/16
W. S. 1	M	20	20.8785	0.0074	0.0077	0.0510	4/ 2/16
W. S. 2	M	..	25.2500	0.0077	0.0079	0.0455	4/ 4/16
Average.....				0.0071	0.0071	0.0383	

* These were from patients with pneumonia in the Medico-Chirurgical Hospital; mainly median venesections.

CONCLUSIONS

From the foregoing studies, we may draw the following tentative inferences:

1. The coagulation time is somewhat shortened in lobar pneumonia.

2. The cause or causes of this abbreviation are not definitely known.

3. The influence of a meal on the coagulation time is trivial, but practically constant.

4. The effect of the administration of calcium salts on the coagulative process must be quite inconsiderable.

5. The calcium present in the blood in lobar pneumonia does not exceed the normal amount.

Personal Liberty.—The domain of community hygiene should not be summarily limited through any fear of the invasion of personal freedom. The community has so often and so successfully asserted its right to limit the actions of the few in order to promote the welfare of the majority that some restriction of personal liberty is universally regarded as a necessary consequence of group life.—E. O. Jordan.

THE WORK OF THE AMERICAN MEDICAL ASSOCIATION CHEMICAL LABORATORY*

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The American Medical Association Chemical Laboratory was established nearly ten years ago — in the fall of 1906. The reason for its existence was primarily the fact that the Council on Pharmacy and Chemistry found it difficult to secure from outside sources such help as it needed in checking up the composition and properties of proprietary medicines under investigation. Medical schools and similar institutions were found ready to lend their assistance in pharmacologic and medical investigations; but the chemical investigation required the establishment of a laboratory under the control of the American Medical Association.

As years have passed, the scope of the laboratory has been extended: Its services have been requisitioned by THE JOURNAL in various ways. Thus, when requested, the laboratory reviews and verifies the chemical data contained in editorials and original contributions. The laboratory is often called on for information as to the character and composition of quack treatments and so-called "patent medicines." Through the columns of THE JOURNAL and through direct correspondence, the laboratory responds to requests of physicians with information regarding the composition of medicines which they prescribe or in which they are interested. The laboratory attempts to be to the members of the American Medical Association what the prescription pharmacist is, or should be, to the prescribing physician — a storehouse of chemical and pharmaceutical information. In the belief that an insufficient familiarity with the chemistry and pharmacy of drugs constitutes the chief reason for the extensive use of unscientific, worthless or fraudulent proprietary remedies, this service is rendered by the laboratory as a contribution to the cause of rational therapy.

Since the efficiency of the American Medical Association Chemical Laboratory will increase as its activities are better known, the following more detailed statement of its work is offered:

THE LABORATORY AND THE COUNCIL

As stated in the rules of the Council on Pharmacy and Chemistry, it is "manifestly impossible for the Council to investigate the composition of every complex pharmaceutical mixture . . . "; "it can only give an unbiased judgment on the available evidence." In line with this, the laboratory does not undertake to prove the composition or constitution of all new synthetics, nor does it attempt to determine the individual composition of proprietary mixtures. It checks all claims that seem doubtful, however, and uses its best endeavors to secure correction of misstatements with regard to proprietary remedies and improvement in the quality of these products. Further, it reexamines, when this seems desirable, the products which have been admitted by the Council to New and Nonofficial Remedies, and thus determines, from time to time,

* Read before the Section on Pharmacology and Therapeutics at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

their dependability. The fact that no product admitted to New and Nonofficial Remedies has later been shown to be untrue to its claimed composition is, it is believed, an indication that in this respect the laboratory has succeeded in performing the work for which it was primarily created.

In this connection the question may be asked, Are many proprietary medicines exploited to the medical profession with false claims in regard to their composition? Also it may be asked, Has the number of proprietaries marketed with false statements of composition decreased since the Council and the laboratory began their work? Answering the latter question first: There is no doubt that today fewer proprietary medicines are being sold with false claims as to composition than there were ten years ago. When the Council began its work, medical journal advertising teemed with statements regarding the composition of medicines which any chemist familiar with medicines would not hesitate at sight to brand as untrue. Today such manifestly false claims are rare. Coming to the former question: Many false statements regarding the identity and composition of remedies have been made in ignorance. This is not surprising when it is remembered that the most ignorant may and do engage in the manufacture of medicines. Besides ignorance, however, an accommodating conscience on the part of the manufacturer and a failure on the part of the medical profession to appreciate the danger which lies in the use of medicines of unknown composition unquestionably have greatly encouraged the marketing of falsely declared medicines. A glaring illustration of the ignorance of manufacturers — for it is hard to believe that any business concern would deliberately court prosecution by the federal authorities through false statements on labels — is the fact that nearly thirty years ago A. B. Lyons published a report[1] pointing out that the proprietary Iodia was falsely declared as to composition and that in 1914 when the Council examined this preparation such incorrect declaration appeared on the label.[2] That many physicians do not recognize the danger to their patients and their reputation in the use of medicines, the composition of which they do not know, is illustrated by the fact, disclosed by inquiries sent to the laboratory, that physicians were found willing to employ an arsenical preparation (Venarsen), advertised for intravenous use, although its promoters vouchsafed no information in regard to the nature of the arsenic compound contained therein.

UNRELIABILITY OF LITTLE USED DRUGS

The purpose of the federal Food and Drugs Act is to secure the prosecution and punishment of all who sell medicines which are adulterated or misrepresented as to composition. As a matter of fact, the wording of the law relating to the adulteration and misbranding of drugs is such that the federal authorities have been able to do little more than to require that the drugs for which standards are provided in the Pharmacopeia shall when sold comply with those standards. Similarly, those states which attempt to improve the quality of drugs sold within their borders — few states do efficient work along these lines — limit their work to the enforcement of the Pharmacopeial standards. This leaves the vast number of unofficial drugs and medicaments beyond the control of federal or state authorities. While most of these drugs are relatively unimportant, and while the amounts of them which are used are not great individually, the total consumption of them is large. With a view of furnishing to physicians standards for drugs of this sort the Council has described in New and Nonofficial Remedies not only distinctly proprietary drugs, but also some of the unofficial drugs which are apparently of therapeutic value and used to a considerable extent. Aiding the Council in this line of endeavor, the laboratory has attempted to establish standards for these little used drugs, and New and Nonofficial Remedies, 1916, provides standards for such unofficial and nonproprietary drugs as quinin and urea hydrochlorid, quinin tannate, sodium acid phosphate, and sodium perborate. An example of work which furnished much needed standards for an unofficial article is the investigation of zinc permanganate by W. S. Hilpert.[3] Reference to the published reports of the laboratory will give an idea of the amount of work such standardization entails. A reference to the new U. S. Pharmacopeia, when this comes from the press, will show that a considerable number of unofficial articles described in New and Nonofficial Remedies have been admitted to the Pharmacopeia along with the standards worked out in this laboratory.

While in a way the work done in connection with these less important drugs has attracted little attention from the medical profession, it has had an effect on pharmaceutical manufacturers. In the past, pharmaceutical houses, ever anxious to market something new, on the slightest provocation have placed on the market, in the form of pills, powder, elixir, ampule, etc., every drug for which some sort of medical recommendation could be found. In marketing these dosage forms, the manufacturer has too often been little concerned about the quality of the drugs used.[4] Just at present, for instance, some interest is being shown in iron cacodylate; but while manufacturers appear to be most ready to take advantage of this interest by offering the drug in the form of ampules, etc., they have given little help toward the establishment of standards for this arsenic compound. Manufacturers are ever ready to sell drugs of all sorts, but in view of the small demand they cannot or will not safeguard the identity and purity of such drugs. A further illustration of the unreliability of unofficial drugs is the recent report by Levy and Rowntree[5] showing not only that the various dosage forms of emetin hydrochlorid obtained from different manufacturers varied from manufacturer to manufacturer, but also that the product of the same manufacturer was variable and that the supply furnished by one pharmaceutical firm was so toxic as to make its use dangerous.

THE ANALYSIS OF "PATENT MEDICINES"

In the preface to the first annual report of the chemical laboratory it was stated that the laboratory "occasionally takes up the examination of 'patent medicines' . . ." At that time it was felt that the widespread use by the medical profession of irrational and even secret medicines made it necessary to devote the laboratory's attention to the correction of this evil. As the years have passed on, these conditions

1. Lyons, A. B.: Detroit Lancet, 1882, vi, 157.
2. THE JOURNAL A. M. A., Nov. 21, 1914, p. 1871.
3. Zinc Permanganate, THE JOURNAL A. M. A., Feb. 6, 1909, p. 480; Reports Chem. Lab., 1909, ii, 15.
4. The Unreliability of Unimportant Medicaments, THE JOURNAL A. M. A., Sept. 28, 1912, p. 1156.
5. Levy, R. L., and Rowntree, L. G.: On the Toxicity of Various Commercial Preparations of Emetin Hydrochlorid, Arch. Int. Med., March, 1916, p. 420.

have been remedied to some extent, at least so far as chemical analysis can correct them. On the other hand, public opinion has been aroused to the many evils connected with the exploitation of "patent medicines," and has more and more insistently demanded that the medical profession aid in the correction of this evil. Accordingly, the laboratory has paid much attention to the analysis of "patent medicines" during the last few years. As the chief asset of "patent medicines" is the element of secrecy which surrounds their composition, it is hoped that the laboratory's analysis of such widely used "patent medicines" as Nature's Creation,[7] Mayr's Wonderful Stomach Remedy,[8] Sanatogen,[9] Eckman's Alterative,[10] Tonsiline,[11] and Bromo-Quinine[12] has been worth the labor. In addition, the work of this laboratory has been published, including not only the results of its analyses, but also the methods which are used. In view of the dearth of published reports regarding the methods used in the analysis of "patent medicines," it is hoped that this feature of the laboratory's work has been of aid to chemists engaged in similar work.

The laboratory's actitives along these lines have done much to discount the claim of proprietary manufacturers that chemical analysis is unable to determine the character of "patent medicines." The recent Wine of Cardui trial has brought it out prominently that chemical analysis can determine the presence of potent constituents, and that "patent medicines" which fail to reveal such potent ingredients to the analyst may safely be put down as worthless. The demonstration that the essential composition of medicinal preparations may be determined by chemical analysis should also prove an effective answer to the manufacturers in their protest against the requirement, now being urged for enactment into law in various states, that the medicinal ingredients of their wares must be declared on the label. Manufacturers have held that this would lay them open to competition with imitations and substitutions. The possibility of chemical identification proves, however, that secrecy of composition, though it prevents consumers from knowing the character of a "patent medicine," will not be a hindrance to the imitator and substitutor.

IDENTITY OF DRUGS USED IN INVESTIGATIONS

In the past, much of the experimental work in medicine has seriously suffered in that the identity of the material used in such investigations was not established. In view of this the laboratory has watched the contributions submitted to THE JOURNAL, and whenever necessary and feasible has urged the authors to identify their material before publication of the findings. For instance, a number of staining agents — so-called "anilin dyes" — have been found to possess therapeutic action. Since the identity of many of these staining agents is today essentially secret, the laboratory has urged through THE JOURNAL that those who experiment with these substances make an effort to determine their identity whenever possible and to give preference to those the chemical identity of which is known. The need for such identification has been discussed in the reports of the laboratory.[13] The amount of work involved in the chemical identification of drugs used for experimental work is illustrated in a contribution entitled "An Examination of Several Commercial Specimens of Opium Alkaloid or Their Salts,"[14] by L. E. Warren, in which was determined the identity of the various opium products used in an investigation by D. I. Macht, carried out under a grant of the Therapeutic Research Committee.

THE LABORATORY AND PHARMACEUTICAL LITERATURE

In the past much of the information in regard to the composition and properties of medicines which has appeared in pharmaceutical journals has not become available to medicine. In many cases medical journals could not afford to publish such data because this would have been contrary to the interest of their advertisers, and hence the publications regarding the irrational character of Lactopeptine, of Bromidia, etc., which appeared in the pharmaceutical journals did not become a matter of common medical knowledge. Through the laboratory an attempt has been made to keep the medical profession informed in regard to pharmaceutical literature. The laboratory has a good working pharmaceutical and chemical library, and subscribes to the important American and foreign pharmaceutical and chemical publications. The discussion of new remedies, such as medinal and sodium veronal,[15] salvarsan, atoxyl and arsacetin,[16] and neosalvarsan[17] soon after their introduction, illustrates the work of the laboratory along these lines.

THE LABORATORY'S EFFORTS TOWARD RATIONAL PRESCRIBING

The laboratory naturally is in thorough sympathy with the present day efforts toward a more rational use of drugs, as exemplified in the Council's publication "Useful Drugs." Two recent contributions of the laboratory may be cited as a further support of the movement for limiting prescribing to the more widely used drugs. In line with the general tendency of manufacturers to put out all sorts of modifications and asserted improvements over official substances, there have been placed on the market a number of preparations said to represent some improvement over the pharmacopeial Blaud pills. The report, "The Quality of Commercial Blaud's Pills,"[18] by L. E. Warren, shows that the ordinary pharmacopeial Blaud pill is in every way the equal of the semiproprietary preparations claimed to be improvements. Further, the examination of the various brands of sodium and theobromin salicylate as compared with the preparation diuretin by P. N. Leech[19] shows that the former preparations, sold at 35 cents per ounce at the time the examination was made, are fully the equal of the proprietary Diuretin, which then cost the druggist $1.75 per ounce.

THE LABORATORY AS AN INFORMATION BUREAU

It is generally admitted that the proprietary medicine business, particularly the exploitation of complex mixtures, attained the extensive vogue which it has or had because instruction in medical schools was deficient in materia medica, pharmacy and chemistry. As a result of lack of knowledge along these lines, the young graduate after some trial became fearful of formulating his own prescriptions, and in time became depen-

7. THE JOURNAL A. M. A., March 5, 1910, p. 806.
8. THE JOURNAL A. M. A., Aug. 19, 1911, p. 671.
9. THE JOURNAL A. M. A., April 20, 1912, p. 1216.
10. THE JOURNAL A. M. A., April 27, 1912, p. 1298.
11. THE JOURNAL A. M. A., April 4, 1914, p. 1109.
12. THE JOURNAL A. M. A., Nov. 27, 1915, p. 1932.
13. Reports A. M. A. Chemical Laboratory, 1912, v, 102.
14. Am. Jour. Pharm., 1915, lxxxvii, 439.
15. THE JOURNAL A. M. A., Jan. 23, 1909, p. 311.
16. THE JOURNAL A. M. A., Dec. 31, 1910, pp. 2303 and 2314.
17. THE JOURNAL A. M. A., Oct. 5, 1912, p. 1295.
18. THE JOURNAL A. M. A., April 17, 1915, p. 1344.
19. THE JOURNAL A. M. A., April 4, 1914, p. 1108.

dent on pharmaceutical firms which provided him with medicines ready to dispense. That physicians have been insufficiently trained in regard to the pharmacy and chemistry of drugs has often been emphasized in pharmaceutical journals where prescriptions containing incompatible drugs are reported and where even plans are brought forward whereby the pharmaceutical profession may aid in remedying this difficulty.

During my pharmaceutical experience I was often sorely vexed as to what to do when prescriptions contained drugs which on mixing would undergo decomposition which the physician surely did not anticipate. I remember well a prescription directing that potassium permanganate be made into pills with extract of gentian and other things, and how, the physician having spurned the suggestion to modify the prescription so as to avoid decomposition of the permanganate, I was obliged to select a mortar, gently triturate the drugs until a conflagration was started, and to finish the prescription after the conbustion had subsided. However, in my pharmaceutical experience I generally found the physician most ready to receive suggestions from the pharmacist which would prevent incompatibilities, improve the palatability and appearance of his prescriptions, and protect the patient from unnecessary expense.

Similarly it has been my experience since the establishment of the Association's laboratory that physicians are anxious to receive information in regard to the materia medica, pharmacy and chemistry of drugs. As the druggist earns the respect and support of the physician when he makes available to him the pharmaceutical knowledge and experience which he has, so this laboratory has aimed to gain the endorsement of the American Medical Association membership by furnishing to physicians information in regard to the composition, chemistry and pharmacy of drugs through replies in the Query and Minor Notes Department of THE JOURNAL as well as through direct correspondence. It has been most gratifying to the laboratory that THE JOURNAL receives an increasing number of inquiries both as regards the chemical and pharmaceutical questions involved in the writing of prescriptions and as regards the composition of secret and semisecret proprietaries (often because they are prescribed by the inquirer's colleague) and "patent medicines" (which are taken by his patient). The laboratory has tried its best to answer the many inquiries received. Many of the questions which come in can be answered by a pharmacist or chemist without hesitation. Others, particularly as to the composition of medicines, the laboratory has been able to answer by reference to its library and its extensive card index. Still others have required experimentation and chemical analysis.

While, as stated a moment ago, the laboratory has encouraged the sending of inquiries and has earnestly striven to furnish the information asked for, it is obvious that the amount of chemical work which can be done is limited. The small size of the laboratory force, consisting of three chemists engaged in actual analytical work, makes it necessary to select for investigation those problems which shall be of general interest to the medical profession. As the American Medical Association is national in its scope, the laboratory has held that it can do analytical work only when such work will be of general interest to physicians and of value both to the medical profession and the public. In view of this it has refrained from undertaking analyses which would benefit only the physician making the inquiry and possibly his patient. The laboratory further has not felt justified in undertaking work of merely local interest: instead it has used its endeavors to secure the investigation of such local problems by municipal or state authorities.

ABSTRACT OF DISCUSSION

DR. F. E. STEWART, Philadelphia: I do not think it necessary to say anything in praise of the work of the Council; the excellent work it is doing is well known to us all. However, words of appreciation are never out of place, and I want to add my testimony to what has been said concerning the splendid work the Council is doing.

PROF. JOSEPH P. REMINGTON, Philadelphia: I have observed the operation of the work of the American Medical Association in this connection and I believe that many proprietary preparations are no longer sold. I was down at the Whitall Tatum Company Glass Works in New Jersey some time ago. They are probably the largest manufacturers of glass bottles for all purposes in the country, and the manager told me that their manufacture and sale of bottles for proprietary medicines had been diminished 50 per cent. I believe that to a large extent the introduction of new proprietaries has been discouraged and the use and sale of many old "patent medicines" has been curtailed and this has been largely due to the crusade of the American Medical Association.

DR. O. T. OSBORNE, New Haven, Conn.: I should like to ask Professor Remington if he knows what becomes of the enormous amount of alcohol used in this country, if "patent medicines" are on the decrease?

PROF. JOSEPH P. REMINGTON: Alcohol is used in medicines and is useful in many ways in pharmacy as a solvent. Regarding proprietary medicines, why—it is often the alcohol in them that the people want. I remember one celebrated druggist of Philadelphia who actually introduced an elixir of ammonium valerinate to the society ladies of Philadelphia and they consumed gallons of it, and yet another worse habit was started when these women swallowed some of this stuff, for morphin was added to it, and some of the finest women in Philadelphia acquired the morphin habit through the use of this elixir. If those people would only use the alcohol in such small amounts as in ordinary medical practice the evil would be abated. It is a terrible question but I believe the people are now using less alcohol than formerly and on account of the Harrison law, less of the opiates.

MR. FRED. I. LACKENBACH, San Francisco: It would seem that what the Council needs most is some means by which the interest in its work may be stimulated, first in the members of the American Medical Association who read THE JOURNAL, and second, in that large number of physicians *who do not* read THE JOURNAL. It is mainly the physicians who do not read THE JOURNAL and who do not know the work of the Council who support the "fly-by-night" proprietary medicine schemes. Many manufacturers of "cheap" pharmaceuticals cater to this latter class of physicians. Here you find the Council doing a lot of splendid work on preparations which rarely are sold to members of the American Medical Association, but which are sold to men who do not read the reports of the Council. Another point bears on the legitimate manufacture of pharmaceuticals. It would seem highly desirable if the manufacturer could have at least one member of its staff affiliated with the American Medical Association. Such an affiliation might tend toward a more harmonious relationship between his organization and the American Medical Association. This may seem difficult of accomplishment because of the antagonism toward the Association in certain quarters but there was accomplished yesterday along a little different line of activity something that shows that such a thing might be practical. At the meeting of the Clinical Laboratory Organization in the Hotel Addison, the matter of clinical laboratory directorship was very thoroughly threshed out. It was finally agreed that the responsibility and conduct of the clinical laboratory

should be in the hands of a qualified physician, not because it was necessary for the technical work of the laboratory, but because one with a medical training could better get the relationship between the work of the laboratory and its significant bearing on the condition of the patient. It would seem that manufacturers who have at heart the best interests of their organizations might consider the feasibility of such a course. It would do away with a lot of unnecessary work now being done by the Council and by means of a better understanding much friction might be eliminated.

PROF. W. A. PUCKNER, Chicago: I do not believe anything has been said which bears on the work of the laboratory. Replying to Mr. Lackenbach: Naturally the medical profession is most hopeful that the manufacturers through their organization will "clean house." The "patent medicine" association—the Proprietary Association of America—has already begun. It has appointed a committee which is investigating the wares which are sold by its members. It has even gone to the extent of expelling one of its members. I trust that the drug manufacturers' association will soon become similarly active.

STUDIES IN PROPHYLACTIC IMMUNIZATION WITH BACILLUS TYPHI-EXANTHEMATICI *

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AND
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The studies in prophylactic immunization against typhus fever, which form the subject of this communication, represent part of the work of an expedition sent to Serbia in June, 1915, by the Mount Sinai Hospital, New York, under the auspices of the American Red Cross. After the occupation of the country by the Bulgarians, the work was continued at the request of the Bulgarian military authorities. In January, 1916, at the invitation of the Austrian government, this work was also begun in Volhynia, Russia, at that time the site of a rather widely spread epidemic.

Besides the vaccination work, bacteriologic, serologic and epidemiologic studies were also carried on which confirmed the observations made by us in 1915 as to the etiologic significance of *Bacillus typhi-exanthematici* in typhus fever.[1] In addition, other new observations were made which will soon be reported in a series of short papers in the *Journal of Infectious Diseases.*

As one of this series of papers, it is proposed to include a more extensive report dealing with the details of the vaccination studies. In view of the rather favorable outcome of the work, and more especially because of the possibility of an extension of typhus fever across the Mexican border during the coming winter, it has been deemed advisable to publish this general summary of the scope and outcome of the studies before the complete report appears.

The vaccine consisted of a suspension of fifteen strains of *B. typhi-exanthematici* in physiologic sodium chlorid solution which had been subjected to a temperature of from 58 C. to 60 C. (136.4 to 140 F.) for from half an hour to one hour. After being tested aerobically and anaerobically as to its sterility, the vaccine was then diluted so that each cubic centimeter contained about two billion bacteria, and 0.5 per cent. phenol (carbolic acid) or tricresol added. Three injections consisting of 0.5, 1, and 1 c.c., respectively, were given in five or six day intervals.

As the supply of vaccine was limited, it was considered advisable to restrict the vaccinations as far as possible to those persons who were most exposed to the danger of infection. The vaccine was therefore administered to the orderlies and members of the hospital staffs who came in contact with the patients on or before admission to the hospital when they were still infested with lice, and also to the men whose duty is was to remove the clothing and bathe and shave the patients on admission, or who were concerned in the sanitation of villages or towns in which typhus fever was epidemic. In addition, many entire hospital units were vaccinated, and in a few instances small military groups in which typhus fever had broken out and was in danger of spreading.

The vaccine was administered by ourselves or by army physicians under our direction. Accurate protocols of each person vaccinated were kept. The details of the follow-up work, in which we had the assistance of the Bulgarian and Austro-Hungarian military authorities, we must reserve for the complete report.

In Serbia, after the Bulgarian occupation, and in Bulgaria, the vaccine was used in sixty-three Bulgarian military hospitals and military sanitation units. In all, 5,251 men were vaccinated. Sixty per cent. of these were vaccinated in November and December, 1915, the rest during the first three months of 1916.

Cases of typhus fever first began to appear in large numbers in the Balkans toward the end of January, 1916, the maximum being reached by the end of February, though foci of the disease appeared in various parts of the country until the middle of May. According to our statistics, there were about 3,000 cases in the Bulgarian military hospitals. How many thousands occurred among the civilians in the villages throughout the country is unknown. Although the epidemic bore no comparison either in numbers or in severity with that which occurred in Serbia during the winter and spring of 1914-1915, it was nevertheless of fair size. The mortality averaged 11 per cent.

Among the 5,251 vaccinated men in the Bulgarian military hospitals and sanitation units, many of whom were frequently exposed to the danger of infection, there occured three cases of typhus fever. The clinical course run by these cases will be described in the complete paper.

According to the statistics of the chief of the medical division of the Bulgarian army, the number of cases occurring among the nonvaccinated in these and other hospitals in Serbia and Bulgaria was many times greater, though the figures are not available for publication. For example, in the town of Uskub, in which there were five military hospitals, complete vaccination was carried out in four. In these four hospitals not one house infection occurred during the course of the epidemic. In the hospital in which vaccination was

* From the Pathological Laboratory of the Mount Sinai Hospital.
* This work was carried out during the tenure of the Theodore Escherich, George Blumenthal, Jr., and Eugene Meyer, Jr., fellowships in pathology and under the auspices of the American Red Cross. The expenses of the expedition were defrayed by directors of the Mount Sinai Hospital. Two of the authors (Plotz and Baehr) took part in the European expedition, both at first working together in the Balkans, but later independently, one in Serbia and Bulgaria, the other in Volhynia and Galicia. Drs. Olitsky, Denzer and Poll were responsible for the preparation of much of the vaccine, the former two subsequently taking part in a second expedition to Mexico.

1. Plotz, Olitsky and Baehr: Jour. Infect. Dis., 1915, xvii, 1.

not carried out, thirty-four house infections occurred during the same period of time.

In the town of Gornijumier in Bulgaria, many cases occurred among the personnel of the hospitals before the vaccinations were instituted. During the course of the vaccinations (ten days) four more cases developed among them. After completion of the vaccinations, no further house infections occurred, though the hospitals had over 300 admissions in the subsequent three weeks.

In the town of Radomir in Bulgaria, twenty of the personnel in the hospitals developed the disease before the institution of the vaccinations. After that time, although the number of hospital admissions increased, no further cases occurred.

In Russia, the observations were chiefly carried out in the portion of Volhynia occupied at that time by the Austro-Hungarian forces, in the territory south of the towns of Dubno and Lutzk to the Galician frontier. This region was studded with Austro-Hungarian field and epidemic hospitals and quarantine stations for the isolations of typhus suspects. The epidemic lasted from December, 1915, to May, 1916, and chiefly affected the civilian population, though the army did not escape. Although the work was done by request of the Austrian war office, for military reasons the statistics as to the extent of the epidemic were not available. Owing to the principle advocated by the general in command of the army group which occupied this territory, no figures as to the number of typhus cases which occurred during the winter and spring of 1915-1916 or as to the extent of the cholera epidemic which occurred in this region during the summer of 1915 have ever appeared in any public reports.

The typhus epidemic in Volhynia was, however, widely spread, and according to our observations the number of cases mounted into the tens of thousands. Owing chiefly to the constant shifting of troops and the movements of supply columns, practically no villages in this entire section remained free of the disease. Because of the absence of any railways throughout the entire territory and the almost impassable condition of the roads, the transportation of the typhus patients from the widely scattered villages to the hospitals was possible only by means of ox-carts drawn by one or more teams of horses. The small typhus hospital at which one of us lived for three months while carrying on bacteriologic and epidemiologic studies admitted over 200 patients with the disease during that time, although, because of the difficulties in the transportation of the sick, it was able to drain only a few villages in its immediate neighborhood.

As in the Balkans, an effort was made to limit the vaccinations to those persons who were most exposed to infections, chiefly members of hospital staffs and sanitation units. The vaccine was used on 3,169 persons in forty-six institutions.

Up to the end of May, 1916, there occurred three cases of typhus fever among the vaccinated. Among the nonvaccinated during the epidemic there were many times that number, though for reasons previously stated no statistics are available.

In an adjacent army group the exposed members of the staffs of four epidemic hospitals were vaccinated, in all fifty persons. Previous to the introduction of the vaccinations, five physicians had died of typhus fever in the territory of this army group alone. Figures as to the number of infections occurring among the physicians, nurses and orderlies were otherwise not obtainable. The vaccinations were carried out in January, 1916. During the period of vaccination (ten days) five cases developed among the staff of the four hospitals in which vaccination was carried out. During the following four months of the epidemic no further cases developed, although, according to the chief of the commission for the control of epidemic diseases in this army group, no changes were made in the routine of handling the admissions to the hospitals, and the number of typhus patients admitted continued as large after the date of vaccinations as previously.

In all, 8,420 persons, members of 109 hospital, sanitation and other units in Serbia, Bulgaria and Volhynia, were vaccinated against typhus fever during the epidemic of 1915-1916, an attempt being made to include in this number only the persons who were most exposed to the danger of infection. Of this number, six developed the disease during the four months of the epidemic. Our experiences in the Balkans and Volhynia during the winter and spring of 1915-1916 with the vaccine made of *B. typhi-exanthematici* would seem, therefore, to indicate that it is capable of reducing the incidence of the disease, although it does not produce an absolute immunity to typhus fever.

TREATMENT OF BACILLUS PYOCYANEUS INFECTION

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In the course of a critical study of wound infections conducted in this laboratory during the past two years, the *Bacillus pyocyaneus* has often been found a troublesome cause of delay in the repair of wounds. While this organism has never been the source of acute danger to the patient, its presence has seemed to retard the production of healthy granulations and impede the growth of new epithelium. It has been an organism difficult to eradicate by the use of most antiseptics. It was rarely an inhabitant of fresh wounds, but its incidence has increased after the first week following injury, and it has often remained the predominating infection.

Examination of the discharges of a large number of wounds has shown that when the reaction of the purulent discharge was strongly acid, the *B. pyocyaneus* was rarely present. It was much more common in wounds showing secretions of low acidity, and especially in those showing a neutral or faintly alkaline reaction. Chemical examination of broth filtrate from actively growing cultures in the laboratory has also shown an increase in alkalinity.

In the search for a specific dressing solution for the treatment of wounds infected by the organism, attention was therefore directed toward the acid antiseptics. A group of organic and inorganic acids was first tested.[1] Nitric acid and hydrochloric acid in dilute solutions were found to have little inhibitory effect on the growth of the organism in broth. Butyric, propionic, mallic, tartaric and acetic acids were then tested, and were found to be much more effective. Therefore

1. Since the pigment pyocyanin is decolorized by most acids, the absence of the green color cannot be taken to indicate the absence of the B. pyocyaneus. Cultural tests must be used to determine the presence and vitality of the organism.

the inhibition did not appear to be simply a question of the acidity of the reaction of the culture medium, but to be a *specific* property of some of these organic acids. Since acetic acid was slightly more effective than the others and, furthermore, always available, it was chosen as one for further investigation.

Experiments were then conducted in the laboratory to compare the activity of acetic acid against the *B. pyocyaneus* with that of a number of other antiseptic dressings in use in the wards of the hospital. The results in vitro showed a great variation in the concentration of the different antiseptics required to inhibit the growth of the organism. Table 1 shows the results obtained.

CLINICAL EXPERIMENTS

Following the indications of the experiments in vitro 1 per cent. acetic acid in physiologic sodium chlorid solution was instituted in the wards of the hospital as a dressing for infected wounds. A series of 111 patients were taken on entry and (without choice, unless the use of some special antiseptic was clearly indicated) dressed continuously by one of the solutions shown in Table 2. All these dressings, with the exception of the salines and of Dakin's solution, were made up with the addition of 0.8 per cent. of sodium chlorid.

The 111 patients were studied as long as they remained in the hospital, and the wound flora of each examined once a week aerobically and anaerobically. Table 2 shows the percentage incidence of the *B. pyocyaneus* for each week for the cases treated by the various dressings.

TABLE 1.—ACTIVITY OF VARIOUS SUBSTANCES ON THE GROWTH OF B. PYOCYANEUS IN VITRO

Solution	Concentration Required to Inhibit Growth in Vitro
Acetic acid	0.050 per cent.
Sodium bicarbonate	Stimulates growth
Dakin's solution*	36.450 per cent.
Quinin hydrochlorid	0.943 per cent.
Sodium chlorid	8.000 per cent.
Benzoic acid	Saturated solution insufficient
Cresol	0.080 per cent.

* This lack of bactericidal power is also shown against some other organisms, notably the B. aerogenes-capsulatus and Staphylococcus aureus, both in cultures in broth and in mediums containing albumin.

TABLE 2.—INCIDENCE OF B. PYOCYANEUS IN WOUNDS DRESSED BY THE SAME SUBSTANCES

Solution	On Entry	After 1 Week	After 2 Weeks	After 3 Weeks
	%	%	%	%
Acetic acid	40	50	0	0
Sodium bicarbonate	50	25	83	66
Dakin's solution	36	43	14	67
Quinin hydrochlorid	33	62	57	14
Sodium chlorid, 0.8%	10	..	60	50
Sodium chlorid, 5%	50	67	Dressing suspended	
Benzoic acid	60	66	..	50
Cresol	67	80	50	67
Average all dressings except acetic	44	46	60	67

It may be observed that (1) among all the dressing solutions tested in the series, acetic acid and cresol were the most active agents in inhibiting the growth of the *B. pyocyaneus* in vitro, and (2) in the series of clinical observations acetic acid was consistently active in ridding infected wounds of this organism.

From Table 2 it may be noted that the *B. pyocyaneus* occurred more and more frequently in the total number of cases up to the third week, and then decreased considerably. Among the cases treated with acetic acid, however, the organism was reported in no case after one week's dressing with this solution. No other dressing solution showed this sharp effect. The incidence among the cases treated with bicarbonate solution increased progressively from the beginning of the treatment. Cresol, while active in vitro, proved ineffective clinically, the cases on that dressing always showing a high incidence of the *B. pyocyaneus*.

Since the completion of the foregoing series of examinations, a 1 per cent. solution of acetic acid has been used as a routine procedure in this hospital for the purpose in question. The clinical results have coincided with the earlier experience.

CHENOPODIUM POISONING

REPORT OF CASE

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NEW YORK

While carrying on the hookworm eradication work in Texas,[1] I observed about 300 cases of hookworm disease treated with oil of chenopodium. Among these one case of poisoning occurred.

Oil of chenopodium, a volatile oil distilled from the Jerusalem oak or American wormseed, which is a common weed in many parts of the South, is being used with increasing frequency in the treatment of uncinariasis. It has been found preferable to thymol because it usually does not make the patients so sick and does not require that they fast for twenty-four hours or more; hence they are more willing to take treatments. It has been found very difficult to persuade patients to take a second or third course of treatment with thymol after they have been through the ordeal once, but the chenopodium ordinarily causes no discomfort whatever. Far fewer cases of toxic effects are on record from chenopodium than from thymol.

The dose of oil of chenopodium given for hookworm is 10 minims on each of three consecutive days. The capsules are taken one-half hour before a light breakfast, and the other meals are taken as usual. The last dose, on the third day, is followed in two hours by a dose of salts or castor oil to induce catharsis. With this dosage the percentage of complete cures, that is, cases showing negative stools on examination for ova, is from 40 to 45 in one course of treatment, 70 to 75 in two, 85 to 90 in three, etc.

REPORT OF CASE

The patient was a young man who gave the history and symptoms of severe uncinariasis, and showed the ova in the feces. Though 21 years of age, he weighed only 95 pounds, was very anemic, and was so weak that he had not been able to work for several months. He was extremely nervous, and was subject to nervous "spells," accompanied by intense headache. He had also had several attacks of recurring malaria during the few months just preceding.

The patient had taken two doses of chenopodium twenty-four hours apart, or 20 minims in all. On the afternoon of the second day of treatment, ten hours after taking the second dose, he was suddenly seized with severe, griping, cramplike pains in the abdomen, vomiting, intense headache, and nervous twitchings and tremors of the extremities. The temperature rose to 102 degrees, with sweating. The nervous condition progressed in a short time to a state of nervous prostration, and the patient became hysterical and was irrational for several hours. A local physician who was called in by the family found the patient on the verge of collapse—

1. The observations on which this note is based were conducted under the auspices of the International Health Board of the Rockefeller Foundation.

extremities cold and clammy, pulse shallow and rapid, heart weak. He administered strychnin, digitalis and nitroglycerin with the object of improving the circulation, applied warmth to the extremities, etc., and the patient rallied. Five grains of calomel were also administered. The stool resulting from this purgation was blood-tinged and contained much mucus and many hookworms.

The next morning the patient had another attack, not quite so severe, with intense abdominal cramps, vomiting, nervous symptoms, and temperature of 100.6 F. The patient again became very weak, the heart rapid and feeble, and more stimulants were given. The patient improved slowly, and was so exhausted that he did not get out of bed for two weeks.

COMMENT

This was evidently a severe case of poisoning with oil of chenopodium, and the symptoms, which coincide, in general, with those of other observers, indicate that the drug affects the central nervous system. It appears in this case also to have caused a local disturbance of the intestinal tract, which is indicated by the abdominal cramps, the bloody and mucous stool, etc. Whether the general condition of the patient, including his chronic malaria, or some undiscovered lesions of the intestines which allowed of unusual absorption of the drug are responsible for these extraordinary toxic manifestations, or whether this is a case of constitutional drug idiosyncrasy, it is impossible to say.

Schüffner and Vervoort[2] report treating 1,400 individuals without a single case of untoward results.

From the literature, Levy[3] has collected reports of twelve cases of poisoning in this country. Nine of the patients died in from two to five days. Eight of the cases were in children under 13 years of age. The smallest dose given in these cases was 30 minims at one time to a patient of 10 years, who recovered, and 4 drops three times a day for two and one-third days (28 drops in all) to an infant of 1 year, which was fatal. These doses, it will be seen, are much greater than was given in the present case. Three of the fatal cases in Levy's collection were in members of the same family.

CONCLUSION

Greater caution should be used in giving this drug to some patients who are chronically ill with uncinariasis or other disease.

477 First Avenue.

Perforating Wound of Globe, with Prolapse of Iris: Report of Case.—E. W. H., man, aged 23, was injured by a piece of flying glass in an explosion on a ship. When the accident first occurred the vision was unaffected, but in a few hours the patient was unable to see out of his left eye, and immediately became alarmed. An attempt was made to remove what was supposed to be a foreign body, with a pair of forceps, and this pull on the iris gave him excruciating pain. On examination, I found considerable hyphemia, prolapse of iris, and a T shaped wound, a horizontal cut through the limbus, and a vertical cut through the sclera. An iridectomy was done and the pillars freed. Then a conjunctival flap was made by making a circumcorneal incision and dissecting the conjunctiva well back. A purse string suture was introduced, and when this was tied, the entire cornea was covered. Six weeks after the accident, the reaction has entirely subsided, and vision in each eye is 20/20. The Roentgen examination was negative.—J. Warren White, A.B., M.D., Ophthalmologist and Otologist, St. Vincent's Hospital, Norfolk, Va.

2. Schüffner and Vervoort: Das Oleum chenopodii gegen Ankylostomiasis und eine neue Methode der Wertbestimmung von Wurmmitteln, München. med. Wchnschr., 1913, lx, 129.

3. Levy, R. L.: Oil of Chenopodium in the Treatment of Hookworm Infections, The Journal A. M. A., Nov. 28, 1914, p. 1946.

Therapeutics

DISTURBANCES OF THE KIDNEYS

(Continued from page 1525)

GLAND ACTION

The flattened epithelial cells lining the capsules of the glomeruli take water and salts out of the blood and then excrete them, and their activity is largely dependent on the activity of the circulation in the malpighian tufts of capillaries, though, as just suggested, they may be stimulated to greater activity by certain substances.[7] This excretion, therefore, is both active and passive. By passive excretion is understood the filtration due to circulatory pressure. This excreted water is then passed into the urinary tubules.

The rodded cells of the convoluted tubules and ascending loop of Henle excrete urea and uric acid and some abnormal constituents of the blood, with a certain amount of water, their activity perhaps being determined by the amount of uric acid and urea in the blood. Also the tubules and especially the convoluted tubules excrete the sulphates and phosphates. The kidney epithelial cells in activity and at rest show different microscopic appearances, namely, in the granules.

Water exists in the protoplasm in from 70 to 75 per cent., and is continuously being absorbed and continuously excreted to keep the amount at normal. Atwater, who did so much careful experimentation on the excretion of water, considered that in twenty-four hours, with a normal subject at rest, about 1,000 c.c. of water were excreted in the urine, 1,000 c.c. by the lungs, 500 c.c. by the skin, and 250 c.c. by the bowels, making a total daily excretion of about 2,750 c.c. Abstinence from water tends to cause an increase in the specific gravity of the blood plasma in spite of the blood taking water from the tissues. The ability of the blood plasma to dissolve, transport and excrete salts also becomes diminished. Owing to this privation of water, the oxidation of foods, general metabolism and the absorption of muscle waste products soon become progressively imperfect. In other words, a certain amount of water is absolutely necessary for proper metabolism and excretion.

On the other hand, if an excess of water is retained in the blood and tissues, the specific gravity of the former may be lowered and a condition of hydremia occur. The first effect of this overfilling of the blood vessels is that more labor is thrown on the heart. If the heart is sufficient and the kidneys are perfect, unless there is exertion and profuse sweating, the extra water will be excreted by the kidneys. If the heart is insufficient or the kidneys are insufficient, edema and dropsy will generally occur. It should also be noted that water can be retained in the body without evident edema, an internal edema, so to speak, but frequent weighing of the patient will determine this fact.

In this hydremic tendency of the blood, nutrition of the cells is interfered with, water is not properly absorbed from the intestine, and nutriment is not well digested or absorbed and utilized.

Bogert, Underhill and Mendel[7] have shown that, in nephritis, water may be retained in the circulation in an abnormal amount. Hence the circulation is overtaxed until the extra water is gradually pushed

7. Bogert, Underhill and Mendel: Am. Jour. Physiol., 1916, xli, 189, 219, 229.

through the impaired kidneys. They think that in nephritis there is an arterial and capillary wall disturbance which prevents normal osmosis.

This consideration of water metabolism is therapeutically interesting. When the urine is diminished in amount, of high specific gravity, the circulation perfect, the kidneys not badly defective and there is no edema, more water should be ingested. In weakened conditions of the circulation with edema, and in serious kidney defects, the amount of water ingested should generally be diminished. When the skin is dry and there is almost shriveling of the tissues on account of a large excretion of water, with the circulation good, and without edema, water should be given in large amounts. In other words, it is wrong to give large amounts of water in cardiac weakness; it is wrong to give large amounts of water in serious kidney defect; it is generally wrong to withhold water in diabetes, and the amount of water prescribed in gouty or other chronic disturbances depends on the condition of the heart and kidneys. Water should generally be given freely in acute feverish processes, unless there are edemas—especially of the lungs—as it helps to relieve kidney congestion, and also helps to eliminate the toxin. After chloroform and ether narcosis, colon injections of physiologic sodium chlorid solution may be given to aid the function of the kidneys, and many albuminurias and renal congestions will be avoided.

If the urine is acid, it may be inferred that the blood is normal or subalkaline. If the urine is alkaline, it may be inferred that the blood is strongly alkaline.

The odor of urine has been supposed to be due to a combination of volatile substances. Dehn and Hartman[8] have found a substance which they call "urinod" which they assert gives to urine its characteristic odor. It occurs in all urine in the minute amount of 1 to 2 parts in 100,000 parts. When the urine is fresh, the odor is blended with other compounds. The odor varies in intensity, depending on whether the urine is acid, neutral or alkaline. The odor of pure urinod is offensive, and is brought out by alkaline evaporation and by fermenting the urine.

The urine contains the starch-digesting amylase. If amylase is decreased in amount, either the kidney function or the ability to excrete amylase is impaired, or amylase may not be produced in normal amounts from the salivary and pancreatic glands, and hence less reaches the blood. Feeding amylase or glands does not ordinarily increase the amylase of the urine.

Normally the skin may excrete a bare trace of urea. If the kidneys are normal, the intestine seems to excrete but little urea.[9] This does not prove that, when the kidneys are diseased, the intestines could not help in the excretion of urea.

The kidneys normally eliminate iodin rapidly, nearly 80 per cent. in the first twenty-four hours after a single test dose, and most of the remainder in the next twenty-four hours. Even in an acute or chronic diffuse nephritis, iodin may be eliminated in nearly normal amount and speed, the amount eliminated in the urine bearing no relation to the amount of urine passed; but in interstitial nephritis the amount of iodin eliminated in twenty-four hours is greatly decreased, and it may take five or six days before it is all eliminated. A test dose is 1 gram of potassium iodid.[10]

8. Dehn and Hartman: Jour. Am. Chem. Soc., 1914, xxxvi, 2136.
9. Van Slyke, D. D.; Courtney, A. M., and Fales, H. L.: Forms of Nitrogen in the Stools of Infants, Am. Jour. Dis. Child., June, 1915, p. 533.
10. Sivert and Kaminsky: Russk. Vrach, 1914, xiii, No. 20.

While the vegetable acids, such as citrates, burn to alkali in the body, the tartrates are not so converted, and leave the body nearly in their original form. Underhill[11] and others have shown that tartrates in large doses can cause tubular nephritis in animals. While human beings tolerate without apparent kidney disturbance small doses of tartrates, either given medicinally or as occur in baking powders and in certain foods, and while it would probably require very large doses to cause kidney inflammation, it would seem inadvisable to give food rich in tartrates or to give medicinally large doses of tartrates in nephritis.

The amount of sugar in the blood varies from 0.04 to 0.12 per cent. with an average of 0.084 per cent., and with carbohydrate in the food the amount of sugar will be increased one hour after such a meal.[12] This emphasizes the advisability of seeking for a dietetic glycosuria in from two to three hours after a carbohydrate meal.

(To be continued)

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLE HAS BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, SECRETARY.

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A vigorous strain of the type A bacillus bulgaricus is grown on a medium representing a clear neutral whey with the addition of 2 per cent. Merck's glucose and 1 per cent. peptone.

11. Underhill: Jour. Exper. Med., 1913, xviii, 317, 322, 347; Jour. Biol. Chem., 1912, xii, 115.
12. Strouse, Stein and Wiseley: Bull. Johns Hopkins Hosp., June, 1915, p. 211.

Our Progress.—We boast of a great civilization, but this is justified only within limits. Science more nearly dominates the world than at any time in the past. Learning permeates the masses more deeply, but credulity and ignorance are widely prevalent. In this country of nearly 100 millions, there are thousands whose greed impedes the progress of the whole, tens of thousands whose ignorance retards their own growth, and other thousands who live by crime and procreate their kind to feed on generations to come. We have our schools, colleges, and universities, while our almshouses, insane asylums, and penal institutions are full. In our cities we see the palatial homes of the very rich, the splendid temples of trade and commerce, the slums of want and poverty, and the homes, both rich and squalid, of vice and crime. No nation in this condition can be given a clean bill of health. Our hilltops are illuminated by the light of knowledge, but our valleys are covered by the clouds of ignorance. We have not emerged from the shadows of the dark ages.—Victor C. Vaughan, Infection and Immunity.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 North Dearborn Street . . . Chicago, Ill.

Cable Address . . . . "Medic, Chicago"

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SATURDAY, NOVEMBER 25, 1916

BLOOD LIPOIDS AND DIABETES

That diabetes may represent something more far-reaching than a failure to utilize carbohydrates alone in the organism has long been indicated by the evidences of disordered fat metabolism in this disease. Among these is lipemia, manifested as a cloudy or milky appearance of the serum of the blood due to the presence of fatty substances. Patients have been reported in whom the blood from the veins looked like chocolate and cream[1] and in whom the vessels at necropsy appeared as whitish cords. Sometimes the fat has been reported as normal in quantity while the lipoids, cholesterol or lecithin, were much increased. It has been impossible to give any trustworthy conclusion as to what the lipemia essentially depends on, because there were too few actual analytic facts on which to base an accurate inference. The nutritive condition of the patients was rarely taken into account in formulating hypotheses as to the significance of the diabetic lipemia; and in any event the methods of blood analysis were far from satisfactory.

It may be instructive, nevertheless, to consider some of the explanations advanced for what seemed to be a characteristic alteration in the make-up of the blood in diabetes. At one time a reduction of the lipolytic power of the blood was supposed to be an important factor; but the possibility of lipolysis in the circulating fluid is no longer treated with serious consideration. Destruction or metabolism of fats is presumably a function of cells rather than tissue fluids. There was a greater semblance of probability in the assumption of a connection between diabetes and tissue disintegration whereby some destructive process sets fats free in undue amounts. Again, as partial inanition often attends the diabetic state, and fats are known to travel in the circulation in starvation from the depots to the places of need, an increased "mobilization" of fats was claimed to account for the lipemia comparable with that sometimes seen in complete starvation. Finally, the increase of fat in the blood of diabetics has been associated with an accumulation of food fat which the diabetic with a presumably deranged fat-burning mechanism can no longer burn up.

Bloor of the Harvard Medical School has lately applied his improved methods for the analysis of blood fats and lipoids to the study of a large number of diabetics, representing all stages of severity of the disease, under scientifically controlled conditions of study. His report[2] offers a background of dependable analytic facts on which to project the explanations or tentative interpretations of phenomena which have so long been a puzzle to the students of diabetes. The blood lipoids—if this term is employed to include all substances, such as true fats or glycerids of the fatty acids, phosphatids, and cholesterol with its esters, connected with fat metabolism—are all found to be markedly increased, up to 100 per cent. or more of the normal values, in severe diabetes. In mild diabetes the lipoids may be normal. In general, the more severe or long standing the diabetic condition the more marked was the abnormality in the blood lipoids. In spite of the high values, the relations between the lipoids were practically those of normal individuals, indicating that the fat metabolism was essentially normal. There was a tendency, however, for the fat to accumulate in excess of the other constituents, and this fact and possibly also the high lipoid values foreshadow the lipemia. The high lipoid values noted occurred entirely in the plasma, the composition of the corpuscles remaining practically normal.

The Journal[3] has already called attention to Bloor's contention that both lecithin and cholesterol play an important rôle in fat metabolism. The lecithin is believed to be active in the first stage through which the fats pass in their utilization by the organism. The use of cholesterol is doubtless equally important if still obscure. The ratio of lecithin to cholesterol in normal blood is almost always a constant one. In diabetes the relations between the lipoids are practically the same as in normal individuals despite the increase in their absolute amount. Speaking of the fact that cholesterol increases parallel with the fat in diabetic blood even in severe lipemia, Bloor says that this gives further support to the earlier assumption that cholesterol has a part and probably an important part in fat metabolism. For the same reason the determination of cholesterol in the plasma (a relatively simple process) should give valuable information regarding the lipoid content of the blood in diabetes.

No definite relation could be found between high blood lipoids and the occurrence of acetone bodies in the urine. It is unexpected to learn that no lipemia in the sense of a milky or cloudy plasma was observed

1. Neisser, E., and Derlin, E.: Ztschr. f. klin. Med., 1904, li, 428.

2. Bloor, W. R.: The Lipoids ("Fat") of the Blood in Diabetes, Jour. Biol. Chem., 1916, xxvi, 417.

3. The Lipoids ("Fats") of Human Blood, editorial, The Journal A. M. A., Sept. 23, 1916, p. 956.

in the thirty-six patients under treatment, although many of the cases were clinically severe. Lipemia was observed, however, in patients not under dietary control. In these cases the milkiness of the plasma promptly disappeared when the persons were put on a fat-free diet. Bloor remarks that since the treatment of the nonlipemic patients included partial or complete fasting, the theory that the excessive blood lipoids in lipemia originate from the mobilization of stored fat as the result of the stimulus of inanition, or that they come from the breakdown of tissue cells, appears quite improbable since, under the foregoing conditions of treatment, fat mobilization or tissue breakdown would be most marked. The origin of the lipemia, when it occurs in Bloor's patients at least, thus appears to reside in the fat of the diet. This will probably suffice to account for many of the instances of lipemia reported in the past. The probable reason for the appearance of fat in the blood, according to Bloor, is a partial failure of the mechanism for dealing with fat. Cholesterol increases parallel with the fat up to eight times its normal value, while lecithin is relatively little increased. Since lecithin formation has been found to be an early stage in the metabolism of fat, it is possible that the inability to form lecithin may be a factor in the production of the lipemia.

"PATENT MEDICINE" ADVERTISING IN NEWSPAPERS AND ON THE TRADE PACKAGE

"If a newspaper does not approve of the business methods of an advertiser, or has a suspicion as to the integrity or quality of the product, it should not accept its advertising." This is not the dictum of an editor of a medical journal engaged in a campaign against fake medicines, but a rule laid down by Truman A. De Weese, an expert in the advertising field, in an address before the Advertising Association of Chicago.[1] A necessary corollary is that the appearance of an advertisement in a newspaper implies that the management of that paper not only approves the methods of the advertiser but does not even suspect the integrity or quality of the product advertised. Yet how many proprietors and managers of our newspapers would be willing to admit that they did approve the methods of the quack doctors and dentists whose advertisements they carry, and that they did not even suspect the integrity or quality of the fake medicines they advertise?

Probably the excuse most frequently given for the publication of such advertisements is that the management of the paper has no practical way of drawing a line between the good and the bad, and that if a given practice or article is even tolerated by the law, it is not for the management of the paper to condemn it. Without discussing the merits of such a defense, it may be pointed out that at least with respect to the advertisements of such medicines as enter interstate commerce, an easy method is available for the detection of presumptive fraud. For if the claims set forth in the copy of the proposed advertisement submitted for newspaper publication are stronger than are the claims made in the package or on the label of the medicine to be advertised, as that medicine is bought in the open market, then the advertisement submitted for newspaper publication is prima facie fraudulent.

This rule for the detection of presumptive fraud in newspaper advertisements of medicines arises out of the operation of the so-called Sherley amendment to the federal Food and Drugs Act of June 30, 1906, which provides that a drug shall be deemed to be misbranded if its package or label bears or contains any false and fraudulent statement, design or device regarding the curative or therapeutic effect of such drug or any of the ingredients or substances contained therein. As the result of this enactment, the labels on such proprietary medicines as are now on the market, and the printed matter in the packages in which such medicines are sold, are generally free from statements, designs or devices that can be proved in court, according to the strict rules of evidence, to be false and fraudulent. In that group of proprietary medicines, however, commonly recognized as "patent medicines" or "quack medicines," such statements, designs and devices may be relied on to reach the very limit of legal tolerance, and any further representation or claim may be fairly regarded as fraudulent; for otherwise, if it is worth advertising, why was it not used on the label or package?

Unfortunately, however, the Sherley amendment does not prohibit the making of false and fraudulent representations and claims elsewhere than on the trade package. Advertisement by means of handbills, posters, bill boards, car cards, newspapers and magazines is still available to the quack medicine man, and he has not been slow to avail himself of the license which the law allows in this respect. Statements, designs and devices are, therefore, used with impunity in newspaper advertising which could not be safely used on the label or package, and it is to the management of the newspaper that the public must look for protection from fraud through such channels.

Remembering, then, that there is no honest and true statement regarding the curative or therapeutic effect of a drug that the manufacturer of a medicine may not lawfully place on the label and package, and that it is to the interest of the manufacturer to place there the strongest claims that he can lawfully make, the newspaper management has only to ask why any stronger claim offered for publication in its columns was not printed on the label placed in the package, if that claim is not false and fraudulent. Until some logical and sufficient answer is forthcoming, no honest newspaper management can accept the proffered advertisement

1. De Weese, T. A.: Am. Food Jour., November, 1916, p. 551.

without stultifying itself, according to the rule laid down by Mr. De Weese, for its acceptance signifies that the newspaper approves the business methods of the advertiser, and is without suspicion as to the integrity or quality of the product advertised.

FOOD IN PENAL INSTITUTIONS

So long as it was held that a prison is merely an institution for the safe detention of criminals, it was not to be expected that the hygienic conditions prevailing in such a place would be in harmony with the best experience or the newest schemes of sanitary science. Food in such an institution was intended solely to keep the prisoner alive and enable him to perform his allotted daily tasks. Penal institutions are beginning, however, to be the seats of active reform. With the acceptance of such a program as part of the function of our prisons, the problem of nutrition can no longer be neglected entirely. It may reasonably be contended that good housing conditions and suitable diet do not of themselves secure reformation of the misguided or the habitual criminal; but without some consideration of the necessity of proper food, the best ends of the imprisonment for crime cannot be attained. Malnutrition may or may not contribute to the production of criminals; in any event, the physiologic and psychic conditions attending the lack of palatable food and a well balanced ration are not such as are conducive to those mental attitudes that lead to improved conduct and more wholesome life. It has been remarked that while a prisoner is not incarcerated for the purpose of being fed an ideal diet, nevertheless he should be fed so as to insure good health and a stable nervous system.

Complaints are so widespread in certain classes of society that they demand investigation before being accepted as valid. Are the current complaints in regard to prison fare in the penal institutions in this country well founded? According to Mrs. Melvil Dewey,[1] the indictment against the four large state prisons of New York State in respect to the meals, the manner of service, the lack of suitable equipment, the monotony and the poor quality of the cooking deserves to stand.

Enough statistics of the cost of adequate nutrition in the United States are now available to make it clear that the sums expended in feeding men prisoners in New York State cannot be expected to yield suitable dietaries unless exceptional skill is applied to the problems involved. Mrs. Dewey reports that the daily per capita in New York State ranges from 11.29 cents at Auburn to 12.58 at Sing Sing. The average expense per prisoner per day for three meals in all the prisons is about 11.5 cents. Occasionally it drops away below this sum. Three meals at Sing Sing, June 5, 1914, cost 7⅛ cents per capita; four other days, 6.95. The menu on the lowest day was: breakfast: corn meal, milk, bread, coffee; dinner: macaroni, bean soup, coffee, bread; supper: tea, bread.

A few details may serve to awaken our conscience in this matter. Mrs. Dewey writes:

> In this dietary the milk is adulterated to three or four times its bulk with water, the coffee is nothing but a slop, no taste of coffee being discernible, and the general statement is that to drink it brings on indigestion. The tea is a strong preparation of tannin, strong enough to tan leather. The macaroni is steamed, not baked. There was nothing appetizing for the prisoners to eat at breakfast except bread; at dinner, bean soup and bread; at supper, only bread. The coffee is made as follows: 3½ pounds of coffee to 1½ pounds chicory to 200 gallons of water; price 14 cents a pound. This mixture is sufficient to serve 1,400 men at a total cost of 56.7 cents a day. To make a good drink, the keeper at Auburn figured it would require 30 pounds of coffee mixed in the proportion as now used with chicory, would cost the state $3.40 instead of 56.7 cents as at present, and would increase the expense in all four prisons about $5,000 a year. At Clinton prison three days in June averaged 6.9 to 9.04 cents per capita. Breakfast: oatmeal, with milk, bread, coffee; dinner: pork and beans, bread, coffee; supper: bread, coffee. Meals at Auburn are said to be the best served in the prisons, and there the milk was skimmed, not diluted three to four times. It seems extraordinary that so little judgment is shown by prison officials in varying and improving the dietary. The same unappetizing stuff is served day after day and year after year, with no variety in food or manner of preparation. A large number of the prisoners have stomach troubles from this cause alone. Canned food is served when fresh vegetables would be just as cheap. The meat is cooked to death and is covered by a so-called sauce. The kitchen keepers are not to blame; it is the fault of the system.

The remedy for this fault is to be found in the appointment of trained dietitians. So long as hospitals and other establishments which incidentally cater to mankind have been slow to appreciate the need of expert services in the planning and preparation of meals as well as in the purchasing of rations, we can understand the inertia of the prison management in this respect. But the time has apparently come for the introduction of such efficiency and supervision as will lead not only to economy of service but also to physiologic well-being. If the dietary is as important as the coal supply or the construction accounts, it deserves a dietitian rather than a stoker or a skilled mechanic to be placed in charge of the food problems.

EXCRETION OF WATER BY THE KIDNEYS

To the English physiologists Haldane and Priestley is due the significant demonstration that the regulation of respiration, meaning by that the amount of ventilation per unit of time, or the total volume of air sent in and out of the lungs, is affected by the carbon dioxid tension of the arterial blood, which is the same as that of the alveolar air of the lungs. Subsequently, in 1905, it was shown that the hydrogen ion concentration, due under normal circumstances to the dissolved carbon dioxid, is the actual exciting agent. Evidently the structures of the respiratory center are sensitive to changes in the concentration of hydrogen ions of the

1. Dewey, Mrs. Melvil: Cost of Foods from Prison to Palace Hotel, Jour. Home Economics, 1916, viii, 527.

blood. In view of the profound need of active tissues for oxygen, it was formerly expected that a fall in the tension of this gas would promptly induce a corrective respiratory response; this is not the case, however, until the oxygen tension falls very low. There is no increase of ventilation so long as an increase of carbon dioxid tension is prevented. Furthermore, the alveolar oxygen pressure can be varied within wide limits without affecting the excitability of the respiratory center to carbon dioxid.

This interesting information regarding the regulation of breathing by very small changes in the carbon dioxid content of the blood has provoked speculation as to how the excretion of waste products by the kidneys is so delicately regulated. It is well known that the organism tends to maintain the composition of blood plasma fairly constant; and the compensatory processes tend to progress with considerable rapidity. Alterations in reaction, sugar content, volume, etc., are promptly adjusted to secure the return to an approximately constant normal composition. It seems likely that the stimulus to the excretion or retention of this or that substance by the kidneys is presumably a slight increase or diminution in its concentration in the blood plasma. Bearing in mind their success in the study of respiration, Haldane and Priestley[1] have lately attempted an interpretation of the factors regulating the excretion of water by the kidneys. Their immediate object was to ascertain what dilution of the blood with water corresponds to a given rate of excretion of water by the kidneys. As a measure of dilution of the blood they at first took the hemoglobin percentage, since, if the blood is diluted with an excess of water during diuresis, there will presumably be a fall in the hemoglobin percentage. For obvious reasons the experiments were made on man. As a means of increasing the excretion of water they adopted the method of simply drinking large quantities of water. To diminish the excretion they employed prolonged sweating in a respiration chamber kept at such a wet-bulb temperature as to produce a maximum amount of sweating without any considerable rise of body temperature. Despite enormous intakes of water, amounting at times to 2 liters at a single dose, followed by pronounced elimination of water by the kidneys to the extent of reducing the specific gravity of the urine to abnormally low figures, there was little attendant change in the blood concentration. In none of the experiments of the English investigators was there a diminution of the hemoglobin percentage parallel with the diuresis; and it seems clear that a diminished hemoglobin percentage, or increased volume of the blood, has nothing to do with the diuresis produced by drinking water. It was clearly necessary to seek elsewhere for the change in the blood which excites the excretion.

Haldane and Priestley remark that the fact that the hemoglobin percentage remains constant during even extreme water diuresis is nevertheless of great significance in enabling us to exclude certain mechanical factors to which the diuresis might be attributed. The urine secreted during water diuresis is of course no mere filtrate, and whatever changes in the composition of the blood lead to the enormous increase in the excretion of water, these changes are evidently very slight, and are comparable to the very minute changes in hydrogen ion concentration which cause enormous changes in breathing. Sweating experiments resulting in considerable loss of weight further showed that just as no fall in hemoglobin percentage need accompany a great rise, due to ingestion of water, in excretion of water by the kidneys, so no rise in the hemoglobin need accompany a fall, due to withdrawal of water from the body, in the excretion of water. The enormous diuresis caused by ingestion of water is not dependent on general dilution of the blood with liquid.

In seeking elsewhere than in mere alterations of the volume of the blood for the causes of increased or diminished excretion of water by the kidneys, attention was turned to changes in the electrical conductivity of the serum. This is, of course, an index to the concentration of salts in the blood. It was found[1] that accompanying the very great diuresis — up to a rate of 1,200 c.c. per hour — following regularly on drinking large quantities of water or dilute salt solution, there are changes in the electrical conductivity of the blood serum: when water is drunk the conductivity is diminished; when salt solution is drunk the conductivity is increased. The following sequence is believed to occur: *Pari passu* with absorption of water from the intestine, salts at first pass out of the blood into the water in the intestine. As a consequence of this loss of salts the conductivity of the blood plasma is diminished, and its proportion of salts to water is similarly diminished. This slight diminution excites a copious diuresis of water sufficient to prevent any increase in the blood volume, so that there is no diminution in the hemoglobin percentage, except, possibly, about the end of the diuresis, when salt is being reabsorbed from the intestine.

The drinking of salt solution instead of water does cause lowering of the hemoglobin percentage. In the diuresis from this procedure, it is postulated that the salt solution, since it has about the same salt concentration as the blood plasma, is absorbed as a whole, without passage of salt outward into the intestine. The diuresis occurs only when both water and salts are in excess relatively to the other constituents of the blood plasma. This is shown by the fact that the hemoglobin percentage is diminished and the conductivity increased during the diuresis. As this passes off, the conductivity of the serum returns to its original value and the hemoglobin percentage rises again.

1. Haldane, J. S., and Priestley, J. G.: The Regulation of Excretion of Water by the Kidneys, Jour. Physiol., 1916, L, 296; Priestley, J. G.: The Regulation of Excretion of Water by the Kidneys, II, ibid., p. 304.

In commenting on these relations between the condition of the blood and the activity of the kidneys, Haldane and Priestley emphasize the smallness of the blood changes as contrasted with the enormous increases observed in the amounts of urine excreted. This recalls the very small changes in carbon dioxid tension in the alveolar air which produce very great changes in the ventilation of the lungs. In the case of the kidney adjustments we are not dealing here with mere filtration in the production of the urine. Active processes incited by seemingly small yet physiologically potent chemical stimuli are at work. The further study of such regulatory responses in the organism promises to be of decided significance.

THE SIGNIFICANCE OF URINARY PHENOLS

Not long after the discovery of the "conjugated" or "ethereal" sulphates in the urine, the conclusion was reached that they represent not primarily a product of metabolism but rather the result of a highly important and efficient protective reaction in the organism. Intestinal putrefaction gives rise to unusual substances not produced as the result of nutritive exchanges per se. Indol is formed from the tryptophan group of the protein molecule through the action of putrefactive bacteria; similarly phenols arise from the tyrosin portion of the protein. Owing to the fact that the bacterial derivatives were discovered as conjugated products in the urine, attention was quite naturally and logically centered on the urinary representatives as indicators of antecedent putrefactive reactions. The formation of phenolsulphuric acid became an illustration of the ability of the body to convert a confessedly poisonous substance, phenol, into a comparatively harmless product prior to its excretion. Following the lead of Baumann, who believed that phenols were almost quantitatively converted into harmless phenol esters, phenols, like other putrefactive products, were estimated on the basis of conjugated sulphates.

Last year we called attention to the unexpected announcement by Folin and Denis[1] that the excretion of total phenol products in the urine appears to be much greater than is indicated by the phenol figures previously published in the literature of this subject. It was further indicated that the phenols are by no means quantitatively converted into conjugated phenols in the body, so that the detoxication process involved in such conjugation appears to furnish only a partial protection against the toxic effect of the phenol products formed by putrefaction in the intestinal tract. These assertions have now been verified at the University of Pennsylvania by Dubin[2] in an elaborate experimental reinvestigation of the physiology of the phenols. He establishes likewise that the phenols can be taken as an index of intestinal putrefaction. Since, even under ordinary conditions of health, at least in experimental animals, the absolute amount of free, that is, unconjugated, phenols represents from 75 to 85 per cent. of the total excreted, and since even under pathologic conditions the free phenols may still represent from 30 to 70 per cent. of the output of "total" phenols, it is highly questionable whether the so-called detoxifying power of the body is sufficient to convert the phenols into conjugated compounds in the way traditionally taught. The absolute amount of free phenols must now be taken into consideration along with their relative proportion in estimating their possible deleterious influence.

Dubin found that under ordinary conditions the elimination of phenols from day to day is quite constant. As a rule, an increase in the formation of phenols, whether normal or clearly pathologic, resulted in an increased conjugation, though the reverse might have been expected. Thus, as he remarks, it would appear that the protective mechanism of the body responded to the greater stimulus. After intestinal obstruction there is an increase in both free and combined phenols; a somewhat similar result attends pancreatic insufficiency with its detrimental effect on gastro-intestinal conditions. An exception was noted, however, in the cases in which bile was excluded from the intestinal tract. Here there was an increased formation of phenol accompanied by a decreased conjugation. It would almost seem as if the bile plays some part in assisting the liver in its conjugating or so-called detoxicating function.

The liver has long been regarded as the organ having the greatest capacity for conjugating phenols, and this function appears to be little impaired by disease. It is not surprising, therefore, to find that a high percentage of free phenols appears in the urine when the liver is largely, if not entirely, excluded from activity by the surgical establishment of an Eck fistula; for in this way the main seat of conjugation has been cut out of the circulation. In spite of this, Dubin has shown that on increased ingestion of phenol there is an increased conjugation, demonstrating that other organs can, when necessary, take up the work of the liver in this respect. Dubin believes, nevertheless, that gastro-intestinal disturbances, in which it is reasonable to assume that there is an increased formation of phenol, and also certain liver diseases in which it is supposed that the mechanism for the detoxication of phenols has been impaired, offer a field for future investigation. Suitable methods of study are now available.

1. Folin, O. and Denis, W.: Jour. Biol. Chem., 1915, xxii, 309. Putrefaction, Phenols and Protective Mechanisms in the Body, editorial, THE JOURNAL A. M. A., Dec. 25, 1915, p. 2243.
2. Dubin, H.: Physiology of the Phenols, Jour. Biol. Chem., 1916, xxvi, 69.

The Family Doctor.—The family doctor has constant opportunities special to his professional relations—by organized charity, by personal devotion, by advice, by warning, by reproof, as the case may demand, to help the man to choose the better part.—J. Mitchell Bruce, *Lancet*, Oct. 21, 1916.

Current Comment

A "PATENT MEDICINE" WITNESS ON THE STAND AND OFF

Under the title "Functioning Without Discomfort" there was recently published in the "How to Keep Well" department of the Chicago *Tribune* a contribution by Dr. Effie Lobdell of Chicago. The "functioning" with which the article dealt was menstruation. Dr. Effie Lobdell's pronouncement — in the newspaper — regarding her drug treatment of the pains and discomforts that sometimes accompany menstruation was, in part, to this effect:

> "The drug which I use for a uterine tonic is quinin. It is far superior to gin or any other alcoholic beverage as a regulator of the pains and discomforts of menstruation. I use quinin as a part of the preparation for menstruation of all patients. . . . Quinin answers all the purposes of alcohol, with, perhaps, the exception of rapidity of action. It is much more constant in its effects, much more lasting, and gives a permanent tone. I regard it almost as a specific."

When Dr. Effie Lobdell went on the stand a little while ago to testify as an expert for the Wine of Cardui concern she discussed the cases of young girls who suffer pain and other distressing symptoms at the time of puberty. After declaring that 90 per cent. of all young girls suffer at this period, the following testimony was given:

> "*Q.*—Doctor, in that 90 per cent. where those symptoms are present, do they require or is it legitimate to give medicinal treatment? *A.*—It is.
>
> "*Q.*—Take instances of that kind, what do you give? *A.*— *My most common remedy is viburnum* [Italics ours.—ED.] compound or combination, the viburnum—simply a combination in which viburnum is one of the principal ingredients.
>
> "*Q.*—Have you ever used Hayden's Viburnum Compound? *A.*—Yes, sir; before other ones were perfected.
>
> "*Q.*—What percentage of that was alcohol? *A.*—Hayden's is 50 per cent. alcohol.
>
> "*Q.*—You understand, doctor, do you, that I am speaking of the epoch of puberty? *A.*—Yes, sir.
>
> "*Q.*—Now, take those cases, what consideration, if any, do you give to the alcohol? *A.*—Nothing at all, only that *it is rather, I think, a good thing at that time.*" [Italics again ours.—ED.]

Possibly some of our readers need to be reminded that Wine of Cardui contains a minute and utterly negligible amount of extractives from viburnum prunifolium and a large and effective amount (20 per cent.) of alcohol. The attorneys for the "patent medicine" concern used their medical "experts" to "play up" the alleged virtues of black haw and to "soft-pedal" the deleterious effects of the alcohol. It may also be remembered that it was Dr. Effie Lobdell who, on the stand, expressed the opinion, that ethyl alcohol varied in composition according to the source from which it was derived!

> "*Q.*—Well, is there any difference in ethyl alcohol— *A.*—Oh, yes.
>
> "*Q.*—Whether it is from fruit or corn? *A.*—Oh, yes; I think there is.
>
> "*Q.*—What is the difference? *A.*—Well, in the fruit alcohols, it would be by their own fermentation—
>
> "*Q.*—I am asking you about ethyl alcohol. *A.*—Well, the ethyl alcohol I am only familiar with has—I have used it in—I know it is a very high per cent. of alcohol; whereas, the fruit alcohols run about seven to ten or twelve per cent.; even less.
>
> "*Q.*—Now, don't you know, doctor, that all alcohol that you get from any wine or beer, or in any other sort of liquors, is ethyl alcohol? *A.*—Probably is essentially, synthetically, but—
>
> "*Q.*—What is it? *A.*—It probably is essentially and synthetically, but it makes a great deal of difference as to how it acts, what you use it for."

To those physicians who enjoy reading that which will appeal to their risibilities and at the same time foster a due sense of humility for the ignorance which still permeates our profession, we can do no better than refer them to the Effie Lobdell testimony that was published in THE JOURNAL for July 8 and 15 of this year.

THE OCCURRENCE OF PHENOLS IN THE FECES

The available evidence in regard to the probable fate of phenol (carbolic acid) and methylphenol (cresol), commonly referred to as the phenols, in the organism has already been reviewed in THE JOURNAL.[1] These substances are known to result from the putrefactive changes which may take place in the alimentary canal, and are believed to represent the toxic products which arise when the tyrosin groups of the proteins in particular fall prey to disintegrative bacteria which may inhabit the intestine. Formerly it was generally believed that the phenols are promptly conjugated in the body after their absorption so as to form glycuronates or ethereal sulphates, whereby they are rendered far less harmful than the original putrefactive derivatives. The newest investigations of the phenols of the urine, however, show that they by no means exist there solely as conjugated compounds. Free phenols may represent a large part of the total urinary phenol output, thus suggesting that the detoxication process offers only a partial protection, at best, against any toxic effect of these substances. Obviously, another path of elimination of phenols is offered through the bowel. There have been few reliable quantitative estimations of the output of phenols in the feces, but the deficiency in our knowledge has at length been supplied by investigations at the biochemical laboratories of the Harvard Medical School and of the Massachusetts General Hospital.[2] These show that only a small fraction (from 7 to 20 per cent.) of the phenols formed is eliminated by the intestine in man. For example, with an output of from 1 to 2 gm. in the urine, the corresponding content in the feces rarely exceeds 0.5 gm. under ordinary conditions. Laxatives or enemas, however, almost invariably bring about a large increase in the fecal output of products giving the phenol reactions. As might be anticipated, the phenols appear to exist in the feces in a free or unconjugated condition.

SPIROCHAETA PALLIDA OR TREPONEMA PALLIDUM?

A rose by any other name would smell as sweet; at the same time, it is just as well to call it a rose. Science, in its rapid progress, does not always stop to consider names; as a result, in medicine especially, there are likely to be a variety of appellations for the same object. As an illustration, we have at least two names for the causative organism of syphilis. Without being too insistent about the matter, THE JOURNAL has for some time been using the term *Spirochaeta pallida* or "spirochete." Every now and then, how-

1. Putrefaction, Phenols and Protective Mechanisms in the Body, editorial, THE JOURNAL A. M. A., Dec. 25, 1915, p. 2243; The Significance of Urinary Phenols, editorial, this issue, p. 1606.

2. Folin, O., and Denis, W.: The Relative Excretion of Phenols by the Kidneys and by the Intestine, Jour. Biol. Chem., 1916, xxvi, 507.

ever, some author has objected to the changing of his preferred term *Treponema pallidum* in accord with this usage. Dr. Pusey,[1] at our request, presents in this issue a brief for *Spirochaeta pallida* or "spirochete." Sentiment would cling to the term *Treponema pallidum* because Schaudinn, the discoverer of the organism, so named it; but sentiment usually does not count in science.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

Correction.—Dr. John C. Spencer, San Francisco, whose death was announced in The Journal, Nov. 11, 1916, p. 1462, writes that the John C. Spencer who died was a layman of exactly the same name, and that he, Dr. Spencer, is very much alive and hopes to enjoy the good things of life for many years to come.

Tuberculosis Ward to be Built.—The board of supervisors of Shasta County has awarded a contract for building a tuberculosis ward at the County Hospital, Redding. The ward will be of frame construction, 132 by 35 feet, will provide accommodation for twelve patients, will be a complete unit containing kitchen, dining room, laboratory, etc., and will cost $4,000.

Personal.—Dr. and Mrs. Walter Welcome Wood, San Francisco, have departed for their new post of duty in Brazil, South America.——Dr. Edwin E. Endicott, Plymouth, accidentally shot himself in the abdomen and hip, November 1, while cleaning his revolver.——Dr. Edward L. Parramore, Boyes Springs, is reported to be critically ill with heart disease.

State Medical Directory.—The California State Board of Medical Examiners has issued a medical directory of all physicians and drugless practitioners who have been duly licensed to practice in that state. The information is kept up to date by the issuing of supplements following each examination. The supplements give also a list of those whose licenses have been revoked.

The Fight Against Typhus.—At a conference between railway officials and the state board of health, held in Sacramento, October 20, a definite policy was outlined with reference to the campaign against typhus fever in the state. Railroad officials will be required to detain for fifteen days all Mexicans entering the United States for any class of railroad work. The Federal government is already examining all Mexicans and Yaqui Indians who seek to enter the United States. Railroad companies will be permitted to work Mexicans during the detention quarantine, but in this case their heads must be examined for lice, which transmit typhus fever, once every week, and weekly baths and clean clothing must be provided.

Plans Initiated for Psychopathic Hospital.—At a recent meeting of the heads of the State Hospital, state officials and physicians in San Francisco, October 20, plans were initiated for the establishment of a psychopathic hospital for the care and treatment of alcoholics and other drug addicts, defectives and insane persons. A committee was appointed to draft a bill, to be introduced in the next legislature, providing for the erection of a building in San Francisco at an initial cost of about half a million dollars. The plans also include an industrial farm for drug addicts and alcoholics, where occupations will be taught and employment will be found for paroled persons. The committee consists of Dr. George E. Bright, San Francisco; Dr. Fred W. Hatch, Sacramento, superintendent of the Napa State Hospital; Dr. Herbert C. Moffit, San Francisco, and Dr. Charles D. McGettigan, San Francisco.

1. Pusey, W. A.: Spirochaeta Pallida or Treponema Pallidum? This issue, p. 1621.

DISTRICT OF COLUMBIA

National Department of Health Urged.—The Washington Chamber of Commerce adopted a resolution, November 13, calling for the establishment of a national department of health. An effort will be made to interest the president and members of Congress in the matter during the coming session of Congress.

Needless Maternal Mortality Following Childbirth.—Complications of childbirth, according to Dr. Grace L. Meigs of the children's bureau, caused in the United States, in 1913, more deaths among women from 15 to 44 years of age than any disease except tuberculosis. At least 15,000 women die each year from such complications, and during the last ten or fifteen years no substantial decrease can be found in the death rate from childbirth. According to Dr. Meigs, speaking before the Council of Jewish Women in Washington, D. C., the chief reason for such mortality is that women and their husbands do not yet realize that every woman needs, and has a right to, skilled care at the time of the birth of her children. A bulletin on this subject, to be issued by the children's bureau, is now in press.

ILLINOIS

Money Raised for Hospital.—Citizens of Pekin have raised $32,500 for a public hospital, and work on the buildings will start in the spring.

State Should Build Infirmary.—Superintendent O'Connor of the Illinois Charitable Eye and Ear Infirmary is leading in an appeal for a new building for the institute. An architect has prepared plans for a new building, to cost about $500,000.

Chicago

Dietary Economics.—It is reported in the daily press that the health commissioner has initiated a dietary test on twelve individuals, the object of which apparently is to ascertain the difference in weight after trial for two weeks of a dietary costing 40 cents per person a day.

Robert Koch Society.—The meeting of the Robert Koch Society, November 23, was held at the Cook County Institute, Oak Forest. Luncheon was served at the Tuberculosis Hospital and papers were read in the afternoon, after which the admission of a number of patients was witnessed. An inspection was then made of the hospital, including the kitchen and dining room.

First Aid Lecture Series.—The newly organized Women's Board of the Chicago Polyclinic and Henrotin Memorial Hospital intiated its first aid lecture series this year with a lecture by Dr. Edwin W. Ryerson on "Infantile Paralysis," November 14. November 21, Dr. Robert C. Hammill spoke on "Nervous and Mental Disorders." On November 28, Dr. Samuel G. Walker will deliver a lecture at the residence of Mrs. Robert H. McCormick, Jr., 25 East Erie Street, on "Medical Subjects of General Interest," and the final lecture of the series will be delivered at the residence of Mrs. Joseph M. Patterson, 3 Banks Street, December 5, by Dr. Malcolm L. Harris on "What Modern Surgery has Accomplished."

MARYLAND

Measles Close Schools.—The Rock Hill and Woodburn schools in Washington County were closed during the week ending November 18, on account of an epidemic of measles. Of the forty-five pupils of the Woodburn School, only three reported for attendance. Fifty-two new cases were reported to the county health officer on one day and twenty-four new cases the day previous. Two rooms in the Clearspring High School were closed also on account of the epidemic, no pupils being present. Of forty-six pupils in the Downsville School, only three attended. At Chewsville the school is closed on account of diphtheria, six new cases being reported, bringing the total to fourteen. Dr. C. Hampson Jones of the bureau of communicable diseases, state board of health, has advised the health officers not to close any schools on account of the measles epidemic, but to place physicians and nurses in attendance at the various schools where the epidemic is severe.

MASSACHUSETTS

Hospital Dedicated.—The Beth Israel Hospital, Roxbury, Boston, was formally dedicated, October 21, and the hospital will be ready for occupancy this month.

Harvard Class Gives Ambulance.—At a meeting of the class of 1908, held at the Harvard Club, it was agreed to donate an ambulance to the American Ambulance Service in France, dedicated to the members of the class of 1908 who are serving in this work.

Contagious Disease Hospital for Brockton.—The board of health at Brockton, at a conference with the board of commissioners of Plymouth County, agreed to erect a hospital for contagious diseases at a cost of more than $50,000, providing the state board of health will endorse the plans.

Personal.—Dr. George M. Sheahan, Quincy, of the Harvard Medical Unit, has returned from abroad.——Dr. Walter H. Brown, Boston, state epidemiologist, has resigned to become executive officer of the board of health at Bridgeport, Conn. ——Dr. Hugh Cabot, Boston, has returned after three months' service at the head of the Harvard Unit on the western front.——Dr. George C. Shattuck, Boston, chief medical officer of the Fourth Harvard Surgical Unit, has returned from abroad.

Examination for Epidemiologists.—A competitive examination for qualification for the position of epidemiologist in the state department of health will be held, December 4. Candidates for the position must apply to the commissioner of health for permission to appear before the board, furnishing the usual information as to age, residence, date of graduation, testimonials, etc.; must be between the ages of 23 and 35, graduates of an incorporated medical school, citizens of the United States, and must pass a satisfactory physical examination and oral, written and practical test. The compensation for the position is $2,000 a year.

NEBRASKA

Alumni Election.—At the annual meeting in Omaha of the University of Nebraska College of Medicine Alumni Association, November 3, the following officers were elected: Dr. William N. Anderson, Omaha, president; Drs. William J. Douglas, Atchison, and James C. Agee, Fremont, vice presidents, and Dr. Roy A. Dodge, Omaha, secretary-treasurer.

Personal.—Dr. Ward W. Hedlund, Lincoln, has been appointed third assistant physician at the Hastings State Hospital.——Dr. William A. Danielson, assistant physician at the Hastings State Hospital, has resigned and returned to Chicago.——Dr. Anders P. Overgaard has been elected president and Dr. Charles O. Rich, secretary-treasurer, of the Midwest Physicians' Golf Association, which was organized at Omaha.

College Appointments.—The following appointments have been made in the laboratory of the University of Nebraska College of Medicine, Omaha: Harold E. Eggers, B.Sc., M.A., M.D., professor of pathology and bacteriology; John T. Meyers, A.B., M.Sc., instructor in bacteriology, and Amos W. Peters, A.M., Ph.D., assistant professor of biochemistry.—— Dr. James Ross Clemens, Omaha, the new dean; Dr. Sergius Morgulis, New York, professor of physiology; Dr. Francis W. Heagey, New York, assistant professor of anatomy, acting head of the departemnt, and Dr. Edward H. McLean, Portland, Ore., assistant professor of pathology and bacteriology, have entered on their duties at Creighton Medical College, Omaha.

NEW YORK

Personal.—Dr. Charles S. McLaughlin, Glens Falls, is reported to be seriously ill in the Samaritan Hospital, Troy.

New York City

Personal.—Dr. W. Gilman Thompson, professor of medicine since the foundation of the Cornell University Medical College in 1888, has resigned in order to devote his entire time to his professional work. He has been appointed professor emeritus of medicine.——Dr. Lewis Atterbury Conners has been appointed professor of medicine at Cornell University Medical College, succeeding Dr. Thompson, resigned. ——Dr. and Mrs. Robert F. Weir have sailed for Havana.—— Dr. Rosalie S. Morton recently returned from France.

Dinner to Health Board Secretary.—A testimonial dinner in honor of Eugene W. Scheffer, retiring secretary of the Department of Health of the City of New York, took place at the Yale Club, November 16, with more than 150 guests present. Addresses were made by Drs. Sigismund S. Goldwater and Thomas Darlington, former commissioners of health, and many other officials. Dr. William H. Guilfoy, registrar of records, acted as toastmaster. At the conclusion of the dinner, as a mark of affection from his many friends and colleagues, Mr. Scheffer was presented with a gold watch and chain. Mr. Scheffer retires at the close of the year after twenty-one years of service in the department.

Gifts to Columbia University.—The trustees of Columbia University announce that during the past month $41,018 has been received and that of this sum $34,000 was from anonymous donors. One gift of $25,000 is a contribution toward the proposed $1,000,000 dental school; another anonymous gift of $9,000 is to be applied toward the maintenance during the current year of the first surgical division of Bellevue Hospital, in accordance with an arrangement recently entered into between the university and the hospital; $1,000 is from Dr. N. S. Jenkins toward the equipment of the proposed dental school. A valuable collection of specimens and medical apparatus has been given to the university by Dr. Herbert N. Gorham, formerly professor of otology.

Examination for Clinic Physician.—The Civil Service Commissioner of New York City announces that applications will be received from November 16 to December 1 for the position of physician (clinics), grade one. Applicants must be citizens of the United States, residents of the state of New York; must present evidence of one year's service as an intern in a hospital or sanatorium, or at least two years' experience in outpatient work or its equivalent; must be licensed to practice medicine in the state of New York and must be at least 21 years of age. The duties of a clinic physician are to diagnose and treat patients at the tuberculosis clinic of the department of health, and to examine, at the occupational clinic of the department, applicants for licenses as food handlers. Eight hours a week are required and the compensation varies from $300 to $1,140 a year.

Prevention and Relief of Heart Disease.—The board of governors of the Committee for the Prevention and Relief of Heart Disease, consisting of Dr. Hubert V. Guile, Dr. Frederick L. Brush, White Plains, Mr. Morris Waldman and Mr. Charles Burlingham, has developed plans for an active campaign to arouse public interest in the important problems of heart disease. Their plan includes, first, proper occupation for cardiacs, which is to be obtained by giving schoolchildren vocational guidance and placing adults under the supervision of social service, teaching a new occupation, and establishing the patient in a small self-supporting business. For the handling of cardiac cases classes are to be established in connection with hospitals, when possible, with duties divided into medical and social work. The medical service is to cover constant supervision of the patients, diagnosis of heart disease, estimation of cardiac efficiency, examination of applicants for convalescent homes and assistance in the selection of a suitable occupation. The cardiac social service includes referring patients to the clinic, the follow-up of hospital, dispensary and convalescent patients, home convalescence and the betterment of home hygienic conditions, and temporary financial aid. Efforts will be made to secure more opportunities for cardiac patients in convalescent institutions and for those known as third stage cases, who possess little or no economic value for the community and who are not suitable for a convalescent home or permanent institutional care. In addition it is planned to keep all playgrounds open the year round and to give special attention to children having cardiac defects. It is estimated that there are about 20,000 such children in the city requiring special care.

Accuracy of Poliomyelitis Diagnoses.—During the course of the recent epidemic of poliomyelitis in this city it was repeatedly intimated that the epidemic was largely a creation of the department of health and that a large proportion of cases listed as poliomyelitis were not poliomyelitis at all. The large number of individuals unfortunately left with some degree of permanent paralysis is in itself sufficient to refute the absurd charge. Thus, of 2,715 patients followed up carefully in their homes, 1,885 were found to have a serious paralysis of one or both lower limbs and to be unable to walk; 530 more were partially paralyzed in the lower limbs although still able to walk, and 273 had one or both arms totally paralyzed. Inasmuch as practically half of the 9,418 cases occurring in the epidemic were treated in the health department's hospitals, it seemed of interest to compile the diagnoses finally arrived at in all the cases sent to the hospitals as probably poliomyelitis. Altogether this embraced a study of 4,474 cases. Of this number ninety-six patients, after being observed in the hospital for some time, were discharged as having "no illness." In forty-nine additional cases the patient's illness proved to be other than poliomyelitis. Disregarding the ninety-six patients sent in for observation as a

matter of precaution, it is seen that actual mistakes in diagnosis occurred in only 1 per cent. of the cases. The symptoms of many of these patients resemble those of poliomyelitis and a prompt differentiation is often out of the question. The proportion of patients manifesting meningeal symptoms is striking; the same is true of acute infections with respiratory symptoms. Altogether the foregoing figures and the table here given testify to the high degree of diagnostic accuracy attained during the recent epidemic.

LIST OF CLINICAL DIAGNOSES MADE IN CASES WHICH WERE FOUND AFTER ADMISSION TO HOSPITALS NOT TO BE POLIOMYELITIS

No illness	96
Hysteria	2
Uremia and nephritis	1
Tuberculous meningitis	8
Rachitic pseudoparalysis	1
Pulmonary tuberculosis	1
Purulent pleurisy	1
Tetany	1
Gastro-enteritis and meningismus	1
Cerebral thrombosis	1
Epilepsy and arthritis	1
Mentally defective (idiocy)	1
Streptococcus meningitis	1
Purulent peritonitis	1
Intussusception (?); gastro-enteritis	1
Dentition	1
Congenital calcaneovalgus	1
Bronchopneumonia; pertussis	2
Cervical adenitis and cellulitis	1
Bronchopneumonia	2
Diphtheritic paralysis	2
Malnutrition and spasmophilia	1
Seven-year-old case of infantile paralysis	1
Pericarditis	1
Kyphosis (Pott's disease)	1
Cerebrospinal meningitis	3
Hemiplegia and syphilitic endarteritis	1
Transverse myelitis specific (?)	1
Influenza meningitis	1
Pneumococcus meningitis	1
Cerebral arteriosclerosis with traumatic neuritis of supra-orbital nerve	1
Spastic paralysis (congenital tetanoid pseudoparaplegia)	1
Chorea	1
Bell's palsy	1
Septic arthritis	1
Hemiplegia, cerebral hemorrhage	1
Measles	1

PENNSYLVANIA

Trichinosis.—In the vicinity of Jenners and Sass, near Somerset, it was reported, November 2, that twenty cases of trichinosis had been diagnosed. There was one death from the disease. It was said to have originated from one focus, and examinations of the blood and muscles of some of the patients confirmed the diagnosis.

Vaccination Rule Upheld.—A decision which is interpreted as making vaccination compulsory in Pennsylvania was handed down, November 13, by President Judge Orlady of the superior court, in sustaining the decision of the quarter sessions court in the case of the Commonwealth against William Gillen who had refused to send his two children to school because he was opposed to vaccination.

Deny Compensation to Intoxicated Men.—In an opinion by Chairman Mackey, the state compensation board has ruled that when an employee who had been drinking appears at his place of employment but does not report for work and subsequently gets hurt, the employer is not liable for compensation. The case was that of Charles Washington, Pittsburgh, against J. A. Evers, Pittsburgh.

Personal.—Dr. Edward A. Krusen has purchased property on Sandy Street, Norristown, where he will establish a hospital.——Dr. Boyd W. Schaffner, Elwood City, who has been ill with typhoid fever in Johnstown, is reported to be convalescent.——Dr. Charles Campbell, Petersburg, has been appointed medical inspector and attending physician for the British Rubber Company in Borneo.——Dr. George A. Stock, Danville, has been appointed resident physician at the White Haven Sanatorium.——Dr. Edward S. Dickey, Pittsburgh, has returned after several months' service with the Russian Red Cross in Persia.——Dr. Charles D. Smedley, Wayne, has been reelected secretary of the Wayne Public Safety Association for the twenty-seventh term.——The governor, on October 20, reappointed Drs. Irvin D. Metzger, Pittsburgh, and Calvin L. Johnstonbaugh, Bethlehem, as members of the State Bureau of Medical Education and Licensure.——At the first meeting of the season of the Oil City Medical Club, Dr. Ford M. Summerville was elected secretary, to fill the vacancy caused by the death of Dr. W. S. Sellew.——Dr. Frank P. McCarthy has been appointed a local surgeon of the Pennsylvania System at Erie.——Dr. Anthony F. Myers, Blooming Glen, has been elected secretary and treasurer of the Bucks County Medical Society for the twenty-fourth term, and at the annual meeting at Doylestown, November 11, was presented with a gold watch and chain, in appreciation of his services.

Philadelphia

Medical History Section Meets.—At the meeting of the Section of Medical History of the College of Physicians of Philadelphia, November 21, Dr. Arnold C. Klebs, Washington, D. C., read a paper on "Some Recent Results of Paleopathologic Research," illustrated by lantern slides, and Dr. Charles W. Burr presented a paper on "Early Resurrectionists."

Personal.—Dr. H. Brooker Mills has been appointed visiting physician to the Philadelphia Hospital for Contagious Diseases.——Dr. Barton K. Thomas has been appointed instructor of clinical medicine in Jefferson Hospital.——Dr. C. Lincoln Furbush has been appointed assistant to the American Embassy at Berlin as medical superintendent of allied prison camps in Germany, and will sail for Europe this month.——Dr. Wilmer W. Trinkle has been appointed coroner's physician, succeeding the late Dr. Thomas J. Morton.——Dr. Frank C. Abbott has returned after a year on the western war front.——Dr. Gwilym G. Davis has been elected a member of the executive committee of the North American Children's Sanatorium, to fill the vacancy caused by the death of Dr. William L. Rodman.——Dr. John Chalmers Da Costa has been appointed consulting surgeon of the Philadelphia General Hospital, succeeding Dr. J. William White.——Dr. T. Hollingsworth Andrews has retired after fifty-two years of practice in Philadelphia.——Dr. Louis W. Schwindt has been appointed a police surgeon to fill the vacancy caused by the death of Dr. Harry W. Weyant.——Dr. Chevalier Jackson, Pittsburgh, has been selected by the board of trustees of the Jefferson Medical College to fill the chair of laryngology made vacant recently by the death of Prof. D. Braden Kyle.——Dr. Ellwood R. Kirby, a former director of health, has been named one of the surgeons at the Philadelphia Hospital, and medical director of St. Mary's Hospital.

SOUTH CAROLINA

Personal.—In the suit of W. H. Hawkins against Dr. Joseph B. Earle, Greenville, in which damages of $10,000 were claimed on account of alleged malpractice, the jury decided in favor of the physician, October 21.——Dr. James E. Daniel, Greenville, has returned after eighteen months' work at the American Women's War Hospital, Paignton, South Devon, England.

Hospital for Westminster.—Through the efforts of Drs. J. H. Johns and William A. Strickland, the residence of Dr. Burt Mitchell, Westminster, has been secured for a hospital. The building has been refitted and equipped, and will be opened this month.——At a meeting of the trustees of the $70,000 fund left by Mrs. Rosa Thompson to the South Carolina Medical Society, it was decided to expend the money in the erection of a new hospital building fronting on Calhoun Street, Charleston, and west of the Riverside Infirmary.

SOUTH DAKOTA

Personal.—Dr. Theodore F. Riggs is under treatment in St. Mary's Hospital, Pierre, for septicemia due to an infected wound of the arm.——Dr. Richmond Favour, Rosebud, has succeeded Dr. Leo L. Elliott as physician at the Red Lake Indian Agency.

Hospital Items. — The Homestake Mining Company announces that it will erect a $50,000 hospital on a site purchased at Lead several years ago.——A campaign has been inaugurated in Watertown and surrounding towns to raise a building fund for St. Mary's Hospital, Watertown.

CANADA

Provincial Councilors.—Drs. W. J. Stanley Millar, Battleford; George R. Peterson, Saskatoon; James F. Irving, Yorkton; William H. Wardell, Moosejaw; David C. Johnstone, Regina; Hugh E. Eaglesham, Weyburn, and Andrew W. Argue, Grenfell, have been elected to the Medical Council of Saskatchewan.

Personal.—Dr. John M. Rogers, Ingersoll, Ont., has been nominated for the legislature.——Dr. A. N. Hardy, Regina, Sask., underwent operation in Chicago recently.——Dr. Alexander D. Campbell, North Battleford, Sask., has been appointed superintendent of the Saskatchewan Hospital for

the Insane.——Dr. Daniel D. Ellis, Fleming, Sask., has been reelected by acclamation Grand Master of the Grand Orange Lodge of British America.——Dr. Harry Morell, Regina, Sask., who has spent two years in France in laboratory work, returned to his home for a few days, and has left again for overseas service.

Board of Inquiry on the Report of Colonel Bruce.—Sir George Perley, Canadian high commissioner (acting) in England, has been appointed by the Canadian government minister of overseas service. One of his first official acts has been the appointment of a special board of inquiry on the report on the Canadian medical services by Col. Herbert A. Bruce, Toronto. Surg.-Gen. Sir William Baptie will act as president of this board. He was selected on the recommendation of the director-general of the Imperial Medical Corps. Other members of this special board of inquiry are: Col. Ernest C. Ashton, Brantford, Ont., G. O. C., Shorncliffe; Gen. John T. Fotheringham, C. M. G., Toronto, A. D. M. S., Second Canadian Division; Col. Arthur E. Ross, Kingston, Ont., A. D. M. S., First Canadian Division; Lieut.-Col. John M. Elder, Montreal, Third Canadian Hospital, Boulogne.

Hospital News.—It is announced that the Canadian government has rejected the proposal for exclusive Canadian hospitals in England.——During the past few months the Provincial Bureau of Public Health, Saskatchewan, has been taking a deep interest in the matter of hospital provision for small urban centers and wide stretching rural municipalities. The hospital act passed at the last session of the legislature of Saskatchewan provides that two or more municipalities may cooperate for the erection and maintenance of hospitals to accommodate their ratepayers during sickness. The act allows for the imposition of a 2 mill tax rate, but it is considered that less than 1 mill will be sufficient for the purpose. The system has been in operation in Lloydminister, where the first rural municipal hospital was established four years ago. One cent an acre under the old system of assessment was found ample for all their needs. Many municipalities have signified their intention of submitting by-laws to the ratepayers at the coming annual elections. In several places by-laws have already been submitted and have received the assent of the ratepayers.

GENERAL

Southern Railway Surgeons Meet.—At the annual meeting of the Southern States' Association of Railway Surgeons, held in Atlanta, November 13, Dr. Joseph M. Burke, Petersburg, Va., was elected president; Dr. Inman W. Cooper, Newton, Miss., vice president and Dr. Ambrose McCoy, Jackson, Tenn., secretary-treasurer.

Bequests and Donations.—The following bequests and donations have recently been announced:

St. Joseph's Hospital, St. Francis' Hospital, Home for the Blind and St. Rose's Home for Incurable Cancer, New York, each $500, by the will of Mrs. Caroline Wilson.

New Rochelle (N. Y.) Hospital, $1,000, by the will of Mrs. Lydia W. Thorne.

Providence Hospital, Chicago, $2,000, for the endowment of a bed, by the will of Mr. George H. Webster.

Hahnemann Medical College and Hospital, Philadelphia, $40,000, by the will of Marcus M. Darr.

Women's Medical College of Pennsylvania, Philadelphia, $2,000, for the endowment of two babies' cribs, by an alumna of the college.

Civil Service Examinations.—An open competitive examination will be held by the United States Civil Service Commission for physicians (male), December 13, at various places throughout the United States, to fill vacancies in the Indian and Panama Canal Service. The salaries range from $1,000 to $1,200 a year in the Indian Service, and $1,800 per year in the Panama Canal Service. Applicants must be between the ages of 21 and 40; must be graduates or senior students in recognized medical schools, citizens of the United States, and must pass the required examination. Those who desire to take this examination should apply to the United States Civil Service Commission, Washington, D. C., or the secretary of any civil service board, for Form 1312.——On the same date, an open competitive examination will be held for dental (male) interns, to fill vacancies at $600 per year with maintenance at St. Elizabeth's Hospital, Washington, D. C. Applicants must be 20 years old or over, citizens of the United States, and graduates or senior students of regular incorporated dental colleges. Applicants must state explicitly the exact title of the examination.

New Officers for Southern Medical Association.—The Southern Medical Association held its tenth annual meeting in Atlanta, November 14 to 16, and elected the following officers: president, Dr. Duncan Eve, Nashville, Tenn.; vice presidents, Drs. Stewart R. Roberts, Atlanta, Ga., and Bransford Lewis, St. Louis; secretary-treasurer and editor of the *Southern Medical Journal*, Dr. Seale Harris, Birmingham, Ala. (reelected), and business manager of the journal, C. P. Loranz, Birmingham, Ala. (reelected). The section on surgery elected Dr. F. Webb Griffith, Asheville, N. C., president; Dr. Jere L. Crook, Jackson, Tenn., vice president, and Dr. Lucian H. Landry, New Orleans, secretary. The section on public health elected Dr. Arthur T. McCormack, Bowling Green, Ky., president, and Dr. Lewis B. McBrayer, Sanatorium, N. C., secretary. The section on medicine elected Dr. James S. McLester, Birmingham, Ala., president; Dr. Randolph Lyons, New Orleans, vice president, and Dr. James E. Paullin, Jr., Atlanta, Ga., secretary. The section on diseases of the eye, ear, nose and throat elected Dr. Thomas W. Moore, Huntington, W. Va., president; Dr. Edward H. Cary, Dallas, Texas, vice president, and Dr. William T. Patton, New Orleans, secretary. It was announced at the closing session that $10,000 had been subscribed to pay the indebtedness on the *Southern Medical Journal* which would leave a balance of $3,500. A gold medal was presented to Dr. J. Shelton Horsley, Richmond, Va., in recognition of his services in original research regarding operations on blood vessels and intestines. Memphis was selected as the place of meeting for next year.

FOREIGN

Memorial to Fargas Roca.—The municipal and university authorities of Barcelona recently placed a marble memorial tablet on the house at Castellersol where had been born Dr. M. Fargas Roca, professor of obstetrics and gynecology at the University of Barcelona, and senator of the realm. After this ceremony the procession passed to the city hall, where his portrait was installed.

Pediatric Association of the Northland.—The incumbents of the chairs of diseases of children at the universities of Copenhagen, Stockholm, Christiania and Helsingfors have organized the Nordisk pediatrisk förening to study scientific and practical questions connected with pediatrics. A special meeting will be held at intervals alternately in these four Northland countries. The first is to convene at Copenhagen in August, 1917. The officers of the new organization are Bloch, Monrad and A. H. Meyer for Denmark; Johannesen, Looft and Collet for Norway; Pipping and Lövegren for Finland, and Jundell, Wernstedt and Lichtenstein for Sweden.

Opium Traffic.—By a decree of the governor of the Society Islands, in accordance with instructions from the French Minister of Colonies, the importation and sale of opium in the islands will cease after Dec. 31, 1920. The decree was issued October 1. According to the report of U. S. Consul T. B. L. Layton at Tahiti, opium is a government monopoly and produces a large part of the revenue of the islands, and the governor was given discretion to continue or discontinue its sale during the next ten years. The price at which it is to be sold is fixed by the governor, and is, for 1917, $43.75 a pound; for 1918, $48.15, and for 1919 and 1920, $52.50 a pound.

Deaths in the Profession Abroad.—Nielsine Nelson, the first woman physician in Denmark, died recently from diabetes, aged 66. She obtained her license to practice in 1885. She bequeathed to the medical faculty of the University of Copenhagen three funds of 20,000 crowns each for scholarships for needy women medical students, and a further 50,000 crowns for the same purpose in the name of Ludvig Trier, a friend who had aided her and other students at critical times. ——**Eugene Louis Doyen,** aged 57, the Paris surgeon, who had made a special study of cancer and claimed to have discovered a microbe which caused the disease; died at his home, in Paris, November 21. He is said to have been the first to use moving pictures of surgical operations, and pictures showing him at work were displayed in public throughout Europe, as THE JOURNAL mentioned at the time, Feb. 2, 1907, p. 433. Doyen brought suit against the photographers for using the films for public representations, and obtained damages and an injunction against their use in France. Inheriting a fortune, he equipped lavishly his "Institut Chirurgical" on the rue Druet, and is said to have been a very skilful surgeon. His statements in regard to a cure for cancer, for foot and mouth disease, as well as many other conditions, have not been confirmed.

Swiss Chemical Industry.—The great extent of the Swiss chemical industry is indicated in a report of Consul W. H. Schulz at Berne (*Commerce Reports*, Nov. 13, 1916). Not only are chemicals for industrial purposes, paints, dyes and

colors, manufactured on a large scale in the 107 factories of the country, but pharmaceutical products, drugs and perfumeries are important items of manufacture. This business has increased rapidly since the beginning of the European war. The exports of chemicals for industrial purposes increased from a little over three and a half million dollars in 1914 to nearly six million in 1915; exports of paints, dyes and colors increased from about six and a quarter millions in 1914 to about six and a half millions, and pharmaceutical products, drugs and perfumery, from about three million to four and three-quarter millions. In 1914 the United States imported about four hundred thousand dollars worth of Swiss pharmaceuticals and products other than dyestuffs, and in 1915 over five hundred and fifty thousand dollars' worth, among them being Swiss alkaloids, saccharin, nucleinic silver, oil of ginger, glycerin, oil of orris root, potassium tartrate, boric and phosphoric acids, sodium, tanning extracts, oil of lavender, carnation oil, camphor, methyl alcohol, collodion, phosphogen, chlorin, codein, bromin, benzylchlorid, nitrobenzene, naphthol and a large list of coal tar derivatives. Swiss chemists are said to have played a great rôle in the development of the artificial dyestuff industry, and some of the most important standard coal tar colors originated in Swiss laboratories. Many pharmaceutical specialties are made there, such as protargol, collargol, argyrol, etc.

WAR NOTES

Red Cross Supplies Released.—The state department has obtained an agreement with Great Britain which will permit the American Red Cross to ship supplies to Germany and Austria-Hungary. The conditions imposed by England were severe, but have been accepted. All members of units sent to the central powers must be Americans, known to be neutral, must agree to remain not less than six months, must be mature, and must be able to speak German.

Ambulance Notes.—One hundred graduates of the Stanford University volunteered, November 4, for service with the American Ambulance Corps in France. The term of service will be six months or more and the expenses are to be paid by San Francisco people.——French army orders of November 12 note the gallantry of Section One of the American Ambulance Field Service under the command of Herbert Townsend, an American officer, who in August and September, 1916, completed the evacuation of three divisions, successively, under particularly dangerous circumstances.

OUR TROOPS ON THE BORDER

Mortality of Troops for October.—The mortality reports for October, which were not available when the article by Lieut.-Col. W. P. Chamberlain, this issue, page 1573, was submitted for publication, show twelve deaths among the regulars and seventeen among the militia. Only four were due to acute infectious diseases. The strength of the command, October 31, was 39,543 for regulars and 102,150 for militia. The causes were as follows:

	Regulars	Militia
Gunshot wounds	2	6
Injury	1	3
Suicide	2	..
Drowning	..	1
Diseases of heart	1	..
Pneumonia	1	..
Appendicitis and peritonitis	1	1
Meningitis, acute	1	..
Dysentery	1	1
Cirrhosis of liver	1	..
Abscess of liver	..	1
Diseases of kidney	..	1
Intestinal obstruction	..	1
Septicemia	1	2

LONDON LETTER

LONDON, Nov. 6, 1916.

The Training of Mutilated Soldiers

The Queen Mary's Hospital, Roehampton, is devoted to the treatment of soldiers who have lost limbs. Not only are they provided with the best substitutes which art can devise, but also while waiting to be fitted they are enabled to learn a trade. Most of them go a step higher in the industrial scale. Thus a boiler maker, who has lost a leg, has elected to become a bookkeeper. In future he will wield a pen instead of a pneumatic riveter. A number of the men are learning typewriting, and spelling classes are held and are most popular. A commercial class put through sixty men last month. There are other classes in plenty, and a man has a varied choice, from diamond polishing to draftsmanship, from hair dressing to electricity. There is a motor shop where repairs are taught. Lathe work is found particularly suited for men who have only one leg, for they can sit at it all day without feeling handicapped by their infirmity. Another place that is always well filled is the electricians' shop. The men begin with elementary work on electric bells, and go by degrees through various stages, dealing in turn with dynamos and motors, accumulators, instruments and telephones. Switchboard manipulation work is always open to the one armed. Wood working as well as metal working is suited to men who have lost a leg or an arm. Nearly all the men have developed a meticulous accuracy, which stands them in good stead; they seem determined to make up for their handicap by making a better use of the limbs they have left. In another shop the men are taught to make women's satchels and hand bags by a firm which guarantees them employment afterward. Poultry keeping is another occupation in which regular instruction is given. The various classes are interrupted every now and then by a man being called away for "walking parade." At these parades the men are taught how to make the best use of their artificial limbs. An employment bureau has been started at the hospital. Employers all over the country are asking for men, and they are finding them a good investment. The men have several advantages. They will not be called up again for military service (a great trouble of employers now is that their hands are constantly being taken for military service); they are well grounded in their trades; they are disciplined, and they are not afraid of hard work.

The Property in a Prescription

A case of considerable interest to the profession has been decided in the courts. A woman consulted a physician who gave her a prescription which she took to a firm of pharmacists to be dispensed. The prescription was not returned to her, and when her husband asked that it should be, this was refused, the pharmacists stating that they had undertaken at the request of the physician not to return his prescriptions to patients unless they were expressly authorized by him to do so. An action was brought by the husband against the pharmacists for the return of the prescription. In giving evidence, the physician stated that the course adopted by him with regard to prescriptions was taken for the protection of the public. He illustrated the danger of allowing prescriptions to be retained by the patient by saying that not infrequently a medicine ordered for an adult was given, without any physician being consulted, to an infant. He had requested pharmacists to inform him whenever a patient asked for the return of a prescription, and he made a practice of writing on prescriptions which might properly be handed back without question the words "Return to patient." The lawyer for the defendants pointed out that the prescription was of no value to them, and that they were only contesting the case on the question of principle and in order to keep faith with the medical profession. The judge held that no property in the document had passed to the plaintiff, as the prescription had been handed to the patient only in order that it might be conveyed by her to the pharmacists to be made up instead of the medical man himself sending it. The claim, therefore, was dismissed with costs.

The School Medical Service

The annual report of the chief medical officer of the board of education, Sir George Newman, has just been issued. The expansion of his staff during the past eight years has been great, and would have been greater but for the all absorbing war. At present it consists of 855 school medical officers and assistant medical officers. Besides these there are 144 ophthalmic surgeons, 35 aural surgeons, 217 dental surgeons, 29 Roentgen-ray specialists and 20 anesthetists. These figures exclude the 215 medical officers who form the staffs of the treatment centers in London; 103 of the 1,300 are women physicians, eighty-eight of whom are whole time officials. Besides the physicians 1,484 school nurses are employed, of whom 996 do whole time service. Sir George Newman reports that a large amount of disease exists among schoolchildren, not less than a million of whom are so physically or mentally defective or diseased as to be unable to derive reasonable benefit from the education which the state provides. Further, a large number of children show defects on entering school which clearly indict the home conditions. Some suggestions are offered regarding these "anteschool conditions." If we are to rear a healthy race, we must from a physical standpoint begin earlier and continue later than the hitherto accepted period of education. A complete scheme

is in process of building; education committees, directors, physicians, nurses, teachers and others are playing their part in the work. In the school medical service, about 2,000,000 children are annually examined. Machinery now exists for examining annually not less than two fifths of the children attending public elementary schools; 201,695 children were examined in regard to their nutrition, with a resultant percentage of 16.3 for children who were found to be subnormal in this respect. Among "minor ailments," defective vision and "adenoids" are important, so also are enlarged tonsils. These conditions are being treated as far as possible. Heart disease and tuberculosis are also discussed. Schemes for the prevention and treatment of tuberculosis vary in different areas; but, generally speaking, early diagnosis is the important thing. The visits to the homes of the children of school nurses and care committees is found to be a direct preventive agency to the spread of tuberculosis.

Overtime Fatigue

A government investigation of industrial fatigue by physiologic methods has just been made by Dr. Stanley Kent, the physiologist. His report is divided into three sections. The first deals with fatigue as a result of overtime. It is stated that when the week-end rest is suspended, fatigue will persist; residual fatigue resulting from inadequate rest leads to lowered efficiency and lessened output. Overtime periods worked on consecutive days produce more fatigue than if separated by days of ordinary length. Overtime induces more fatigue late in the week than it does early in the week. Overtime is physiologically and economically extravagant. It frequently fails in achieving its object, as the following case shows: A girl in one of the works frequently did not attend during overtime. She also habitually began work at 8:30 instead of 6 a. m. Thus she usually worked only eight hours a day, instead of 12. When asked the reason, she replied that the extra rest enabled her to work so much more quickly that she was able easily to make up for the lost time.

The second section of the report deals with the influence of fatigue and of overtime on output. The total daily output may be diminished by the introduction of overtime, for the rate of working and total output are limited by fatigue rather than by other conditions. A group of piece workers increased their earnings considerably as a result of a diminution in the length of the working day. In the third section it is stated that the total output of a factory is a question of adjustment of the factors concerned, the principal of these being the actual time worked and the actual rate of working. Reduction of the latter will soon counterbalance increase of the former, and thus overtime frequently leads to a diminution of total output. The health of the worker, on which his rate of working and his endurance depends, is prejudiced by overtime and to a less extent by work in the early morning hours. The suspension of overtime was followed in every case by an improvement in the conditions of the worker, and was found to effect a saving of 4.5 per cent.

The experiments on which the foregoing conclusions are based were carried out with great care and by means of all kinds of ingenious apparatus for testing attention and working power. Both male and female labor was employed in the factories concerned. Dr. Kent also points out that the evidence is against Sunday labor, which is liable to prove "disastrous." As a result, the minister of munitions has stopped all Sunday work in the factories producing munitions.

PARIS LETTER

PARIS, Oct. 19, 1916.

The War

WOUNDS OF VASCULAR TRUNKS WITHOUT HEMORRHAGE

Dr. Pierre Duval of the Faculté de Médecine de Paris, and surgeon of the hospitals, reported to the Société de chirurgie de Paris nine cases of wounds of the great vessels without hemorrhage, observed in surgical ambulance. Such wounds are almost invariably produced by shell fragments. In four of these nine cases of wounds of the vascular trunks, there was no external hemorrhage, and no clot was found; in three there were a few clots surrounding the vascular lesion, but no true hematoma; in one, hemorrage had begun, but it was not found necessary to change the first aid dressing. In three of the cases, the mechanism of arrest of hemorrhage was noted: in one, the fragment of projectile blocked the wound of the artery; in another, a button-shaped clot occupied the end of the artery and its immediate neighborhood; in a third, the two ends of the vessel, drawn apart for the distance of 6 cm., were closed by retraction of the walls. The wounds were treated by ligature from three to fifty-one hours after their infliction, all the patients recovering.

These exsanguine lesions of the great vessels are not without their importance. In view of the possibility of their causing secondary hemorrhage during the transportation of the wounded, two questions suggest themselves: First, should a tourniquet be applied at the first aid station whenever the anatomic conditions cause one to suspect a wound of the vascular trunk? Second, in such a case, though there is no hemorrhage, should one nevertheless at once systematically explore the condition of the great vessels? On account of the dangers of the tourniquet, Duval would prefer immediate exposure of the vessels in every wound in which they are liable to have been injured. The risk of contaminating the vascular sheath in an infected wound can be reduced to a minimum by the employment of instruments other than those with which the wound has been laid open.

Dr. Sencert agrees with Duval that in such a case it is essential to expose the vessel and explore it. By following this line of action he has frequently found a wound of a vessel momentarily blocked by a projectile or a clot. When dealing with a wound produced by a bullet whose track seems to pass through a great vessel, many surgeons are of the opinion that in the absence of external hemorrhage or a hematoma, one should defer action. Sencert is of the opinion that in certain cases it is possible to diagnose the existence of a wound of a great vessel from the pain and from the functional impotence of the limb. These two symptoms usually are only slightly noticeable if the wound is a simple one, but very conspicuous if one of the larger vascular trunks has been injured. In such a case it is better to intervene at once, exposing the vessel and effecting direct hemostasis, rather than to await the formation of secondary hematoma which is so liable to imperil the collateral circulation.

INAUGURATION OF THE EDITH CAVELL HOSPITAL SCHOOL

M. Justin Godart, undersecretary of state for the military health service, recently inaugurated the hospital founded in memory of Edith Cavell by the Association for the Development of Aid to the Sick. The association has placed gratuitously at the disposal of the health service, for the duration of the war and for six months following the signature of the treaty of peace, the premises necessary for a military hospital of 100 beds, the health service being responsible for the equipment and the operation. At the head of the medical staff is Professor Hartmann. Mme. Pierre Curie will direct the roentgenologic teaching service. Besides the surgical pavilion and the general services, the hospital will comprise four ward pavilions—two for the wounded, and two for the sick. Subscriptions of about 200,000 francs (about $38,600), which have already been made, will soon transform this hospital into a permanent hospital school destined to furnish a corps of professional nurses.

Antialcoholism in Primary Education

The National League against alcoholism recently expressed to the minister of public instruction, M. Paul Painlevé, its desire that the moral influence of the teachers should be used to found antialcoholic sections among the schoolchildren. Following this suggestion, M. Paul Painlevé has called the attention of teachers to the necessity of giving their pupils antialcoholic instruction. It is proposed that the children pledge themselves to abstain from spirituous liquors, and that those in each school who have taken this pledge shall be set apart in a special group or antialcoholic section. Although in some schools the abstainers may not be sufficiently numerous to constitute a special section, it is nevertheless worth while (according to the league) to obtain these personal promises even though they be isolated. Similarly, in the forthcoming organization of *"enseignement post-scolaire"* (night schools, etc.), of professional apprenticeship and of military preparation courses, the league believes—and the minister is of the same opinion—that antialcoholic teaching should have an important place. The league is particularly anxious that the "temperance" clause shall be inserted in the programs. In virtue of this clause, the members of the organizations, supplementing school education, will warmly adhere to the antialcoholic propaganda, and will engage themselves to receive and encourage pledges of abstinence on the part of their pupils. At the end of each educational year, the report on these various supplementary works will mention the number of children, of apprentices and of adolescents who have taken such pledges and constituted antialcoholic sections.

Finally, in social reunions, the schoolmasters will see to it that the use of alcohol shall be forbidden in fêtes, excursions, etc., as it is already in the school sports, in imitation of the excellent example of the federation of gymnastic societies, which has excluded from its buffet all spirituous liquors.

The minister has also given orders to all the heads of educational establishments and to the directors of the communal schools, commanding them to forbid people to give schoolchildren other beverages than water, milk, beer, wine or cider diluted with water, "hygienic infusions" without additional alcohol. This reform, in appearance insignificant, will have an important effect. In several departments of the west, families have formed the deplorable custom of giving their children alcohol (spirits) for the midday meal which they take to school.

The Monthly Variation of the Birth Rate

In two communications to the Académie des sciences, Prof. Charles Richet has demonstrated by statistics that in every country the birth rate taken day by day throughout the year follows a regular course, rising to a maximum on a certain day. This day is constant, or practically so, for the same place; or, rather, it undergoes a gradual variation, depending on the number of births. It differs, however, from country to country, and in the same country from one region to another. Carrying back the figures to the date of conception, it is noted that the day of maximal conceptions passes from the commencement of February, in the south of Europe, to the end of March, in the north. For the whole of France, this day is March 12, with a gradual change from department to department as we go from south to north. After having eliminated all other causes, Richet concludes that this phenomenon is physiologic and is due to the influence of the external temperature. The higher this temperature the earlier this maximum will arrive. Between the maximum and the mean there is a difference of 5 per cent., which may be considered as characteristic of this physiologic phenomenon. It is notorious that the tendency is for the birth rate to diminish every year. Step by step with this diminution, the difference between the mean and the maximum is becoming reduced. This difference is twice as great in countries with a high birth rate as it is in countries with a low birth rate. In illiterate countries the difference is much greater, as it is also in the rural regions. According to Richet, these facts agree in confirming the influence of the urban and literary life, which tends to eliminate the influence of the simple physiologic factor and at the same time to reduce the birth rate.

Marriages

ELMER LAWTON KENYON, M.D., to Miss Friede Augusta Heyde, both of Chicago, November 9.

LIEUT. WILLIS POWER BAKER, M. R. C., U. S. Army, Washington, D. C., to MARGARETE DARVAS, M.D., New York, November 4.

EDWARD PHILIP LASKEY, M.D., Haverhill, Mass., to Miss Charlotte Belden Tice of Dorchester, Boston, October 26.

WILLIAM JOSEPH CRUIKSHANK, M.D., Brooklyn, to Miss Grace Lovejoy Dunning of Palmyra, N. Y., November 4.

GEORGE J. FRAZIER, M.D., Santee, Neb., to Miss Emma Scott of Springfield, S. D., in Sioux City, Iowa, November 8.

JOHN MCCREA DICKSON, M.D., Gettysburg, Pa., to Miss Marion Ball of Mahanoy City, Pa., November 1.

CHARLES FARNHAM COLLINS, M.D., to Mrs. Helena Gillet Lefferts, both of New York, November 9.

GROVER ASA SILLIMAN, M.D., Delhi, N. Y., to Miss G. Ada Herring of Sayville, N. Y., October 14.

RAYMOND ARTHUR RAMSEY, M.D., Columbus, Ohio, to Miss Leah Ottman of Cleveland, October 28.

THOMAS AUGUSTINE MAHER, M.D., Brewster, Minn., to Miss Margaret McCall, recently.

ISADORE EDWARD BISHKOW, M.D., Chicago, to Miss Cecilia Harris of Brooklyn, October 31.

FRANK V. WILLHITE, M.D., to Miss Nellie Abel, both of Yankton, S. D., October 30.

ELIZABETH ETTA RUSK, M.D., to William Miles West, both of St. Louis, November 4.

LEO B. SCHWARTZ, M.D., to Miss M. Sobol, both of New York, recently.

Deaths

Emil Hessel Beckman, M.D., Rochester, Minn.; University of Minnesota, Minneapolis, 1901; aged 44; a Fellow of the American Medical Association; a member of the American Surgical Association and Western Surgical Association; formerly city physician of Minneapolis and superintendent of the Minneapolis City Hospital, but for the last nine years a member of the Mayo staff at Rochester; died at his home, November 7, from septicemia, due to a staphylococcus infection of the nose.

Oscar Percy Johnstone, M.D., Reno, Nev.; Rush Medical College, 1905; aged 45; a Fellow of the American Medical Association; formerly professor of pathology in the University of Colorado, and later director of the State Hygienic Laboratory of the University of Nevada; at one time a member of the state board of health and vice president of the Washoe County Medical Society; was found dead in his office, October 9, from arteriosclerosis.

Carl Buttner, M.D., Orange, N. J.; University of Würzburg, Germany, 1867; aged 67; formerly a Fellow of the American Medical Association; a member of the Medical Society of New Jersey; a veteran of the Franco-Prussian War; and later a major in the Medical Corps of the National Guard of New Jersey; a member of the surgical staff of the Orange Memorial Hospital; died at his home, November 18.

Henry H. Keith, M.D., Topeka, Kan.; Ensworth Medical College, St. Joseph, Mo., 1900; aged 50; formerly surgeon of the Topeka Street Railway Company and coroner of Shawnee County; postmaster of Mineral, Kan., in 1896, and in 1902 local surgeon for the Missouri, Kansas and Texas Railroad; also a pharmacist; died in the Topeka State Hospital, November 3, from paresis.

Richard H. Parsons, M.D., Mount Holly, N. J.; University of Pennsylvania, Philadelphia, 1880; aged 57; a Fellow of the American Medical Association; for thirty years medical superintendent of the Burlington County Hospital; visiting physician to the Burlington County Asylum; died in Mercy Hospital, Trenton, November 11, from pneumonia.

Eugene Alexander Freis, M.D., Brooklyn; College of Physicians and Surgeons in the City of New York, 1885; aged 56; for twenty years a practitioner of Bushwick and one of the founders of the Bushwick Hospital; formerly chief surgeon of the Chambers Street Hospital and of the hospital on Ward's Island; died at his home, November 6.

Heman Humphrey Robinson, M.D., Goshen, N. Y.; New York University, New York, 1860; aged 78; for two years president of the Orange County Medical Society and for three years its treasurer; local surgeon for the Erie Railroad, and for several years city physician of Goshen; died in Westchester County, N. Y., October 26.

Nathaniel G. McMaster, M.D., New York; Bellevue Hospital Medical College, 1868; aged 73; a member of the Medical Society of the State of New York; a veteran of the Boer War, in which he served as surgeon in the British service; attending physician at the DeMilt Dispensary, New York; died at his home, November 8.

Byron Sinclair Gailey, M.D., Jacksonville, Ill.; University of Michigan, Ann Arbor, 1895; aged 43; a Fellow of the American Medical Association; a specialist on diseases of the eye, ear, nose and throat, and for sixteen years oculist and aurist to the Illinois State School for the Deaf; died at his home, about November 9.

Marcus A. Franklin, M.D., Philadelphia; Jefferson Medical College, 1870; aged 73; a Fellow of the American Medical Association; first intern for the German Hospital, Philadelphia, and visiting physician to the institution for fourteen years; died at his home, November 6, from edema of the lungs.

John Floyd Holt, M.D., Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1903; aged 39; a Fellow of the American Medical Association and a member of the medical staff of the Passavant Hospital, Pittsburgh; died in Parker, Pa., November 11, from pneumonia.

George Dallas Stanton, M.D., Stonington, Conn.; Bellevue Hospital Medical College, 1865; aged 77; a member of the Connecticut State Medical Society; a widely known practitioner of New England and an authority on genealogy; died at his home, November 7.

Joseph Alfred Brown, M.D., Germantown, Ohio; Medical College of Ohio, Cincinnati, 1878; aged 61; a Fellow of the

American Medical Association; on whom a nephrectomy was performed about a year ago; died at his home, November 9, from disease of the kidney.

John Pressley Brown, M.D., Benton, Ill.; Missouri Medical College, St. Louis, 1878; aged 73; formerly a Fellow of the American Medical Association; a member of the Illinois State Medical Society; died at his home, August 11, from cirrhosis of the liver.

John I. Grady, M.D., Natchez, Miss.; Tulane University, New Orleans, 1900; aged 38; formerly a member of the Mississippi State Medical Association; a specialist in genito-urinary diseases; was burned to death in his home, November 12.

Guert Merril Tinker, M.D., Sharon, Pa.; University of Pennsylvania, Philadelphia, 1894; aged 47; a Fellow of the American Medical Association; physician to the C. H. Buhl Hospital; died at his home, November 8, from septicemia.

Franklin Sylvanus Jewett, M.D., Providence, R. I.; Hahnemann Medical College, Philadelphia, 1894; aged 59; for many years a clergyman of the Congregational Church and an evangelist; died at his home, October 24.

Thomas S. Masson, M.D., Cape Vincent, N. Y.; Queen's University, Kingston, Ont., 1875; aged 65; formerly a member of the Medical Society of the State of New York; died at his home, October 26.

John Wayt Poindexter, M.D., Prairie Home, Mo.; Medical College of Virginia, Richmond, 1875; aged 65; for thirty-eight years a practitioner of Missouri; died at his home, about September 18.

Joseph Henry Brewer, M.D., Salem, Ore.; Northwestern Medical College, St. Joseph, Mo., 1881; aged 69; for sixteen years a practitioner and druggist of Salem; died at his home, October 12.

George Edward Luster, M.D., Galesburg, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1874; aged 63; was found dead from cerebral hemorrhage in his office in Galesburg, October 19.

Joseph Stokes Garwood, M.D., North Lewisburg, Ohio; Eclectic Medical Institute, Cincinnati, 1873; aged 69; died in the Champaign County Hospital, November 4, from cerebral hemorrhage.

John Edward Maguire, M.D., Dubuque, Iowa; State University of Iowa, Iowa City, 1893; aged 46; for five years county physician of Dubuque County; died at his home, November 8.

Adoniram J. Woofter, M.D., Weston, W. Va.; College of Physicians and Surgeons, Baltimore, 1882; aged 62; was run over by a train at Weston, September 21, and instantly killed.

Ralph Morgan Russell, M.D., Birmingham, Ala.; Bellevue Hospital Medical College, 1888; aged 49; died in an infirmary in Birmingham, November 4, from cerebral hemorrhage.

Christian Albert Weinbach, M.D., Buffalo; University of Buffalo, 1895; aged 42; a member of the Medical Society of the State of New York; died at his home, November 9.

Andrew Jackson Applegate, M.D., Wagoner, Okla.; College of Physicians and Surgeons, Keokuk, Iowa, 1864; aged 92; a veteran of the Civil War; died at his home, October 20.

Lewis E. Deuble, M.D., Miller City, Ohio; Columbus Medical College, 1886; aged 57; a specialist on diseases of the eye and ear; died at his home, October 20, from pleurisy.

William Robert Knapp, M.D., York, Neb.; University of Nebraska, Lincoln, 1884; aged 60; for several years physician of York County, Neb.; died at his home, October 30.

Seraphin Eusebe Bergeron, M.D., Fall River, Mass.; Victoria University, Cobourg, Ont., 1880; aged 59; died at Warren, R. I., August 21, from cerebral hemorrhage.

William Ernest McLaughlin, M.D., Toronto, Ont.; Trinity Medical College, Toronto, 1904; aged 39; died suddenly near Port Dover, Ontario, July 31, from aphasia.

Lawrence James Dailey, M.D., Gloversville, N. Y.; New York University, New York, 1882; aged 59; died at his home, August 21, from cerebral hemorrhage.

Almon Gleason, M.D., Cleveland; Homeopathic Hospital College, Cleveland, 1873; aged 70; a veteran of the Civil War; died at his home, November 5.

William C. Irby, M.D., Laurens, S. C.; Jefferson Medical College, 1870; aged 68; a Confederate veteran; died at his home, October 26.

John S. Fisher, M.D., Toledo, Ohio; Pulte Medical College, Cincinnati, 1876; aged 70; died at his home, October 25.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

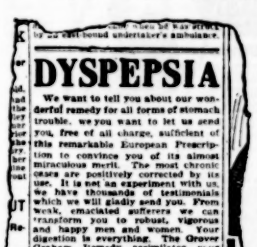
MORE MISBRANDED NOSTRUMS

DR. JONES' LINIMENT

Morris, Leonard J. and Jacob K. Spiegel, trading under the firm name of Dr. M. Spiegel & Sons, Albany, N. Y., put on the market "Dr. Jones' Liniment," recommending it for corns, callouses, toothache, headache, backache, "rheumatism," neuralgia, frost bites, chilblains, sore throat, quinsy and various other conditions. The government chemists reported that analysis "showed it to be essentially a gasolene solution of oleoresin of capsicum, oil sassafras, methyl salicylate, and evidently, volatile oil of mustard." The therapeutic claims were declared to be false and fraudulent and made knowingly and in wanton and reckless disregard of their truth or falsity. The three Spiegels entered pleas of guilty and were fined $25, or $8.33 each.—[*Notice of Judgment No. 4138.*]

GRAHAM DYSPEPSIA AND HEARTBURN REMEDY

This product was put on the market by the S. Grover Graham Company, Newburgh, N. Y. Government chemists who analyzed this preparation reported that it contained, among other things, sodium bromid, sodium bicarbonate, magnesium carbonate, sugar, chloroform, alcohol and small quantities of morphin. The following outrageous claims were made for the preparation:


DYSPEPSIA
We want to tell you about our wonderful remedy for all forms of stomach trouble, we you want to let us send you, free of all charge, sufficient of this remarkable European Prescription to convince you of its almost miraculous merit. The most chronic cases are positively corrected by its use. It is not an experiment with us. We have thousands of testimonials which we will gladly send you. From weak, emaciated sufferers we can transform you to robust, vigorous and happy men and women. Your digestion is everything. The Grover Graham Remedy assimilates your food, prevents fermentation and instantly removes all distress. Why suffer? For sale by Central Drug Co., Burk & Rayner, Public Drug Co., Auditorium and Economical Drug Co., and all leading druggists. Write for literature and free bottle.
Grover Graham Co., Newburgh, N.Y.

"**Remedy for** . . . Gastritis . . . Ulceration or Threatened Cancer of the Stomach, and all disorders arising from an impaired digestive system. . . . This valuable preparation is offered to the public for the correction and immediate relief of the above diseases."

"The Great Food Digester." .

The government, in its suit against the concern, charged that these and similar claims were false and fraudulent and were made knowingly and in reckless and wanton disregard of their truth or falsity. The company pleaded guilty and was fined $25.—[*Notice of Judgment No. 4139.*]

MOTHER HART'S BABY SYRUP

Guy H. Boyd who did business in York, Pa., under the name of Dale & Co., marketed "Mother Hart's Baby Syrup." The preparation admittedly contained 3 grains of opium to the ounce and 10 per cent. alcohol. Some of the claims made for it were:

"A Safe Remedy For The Home."

"A Safe, Sure and Speedy Relief for the Aches and Pains Starting in the little Stomach."

"Will prevent Convulsions and Cholera Infantum if taken in time."

"The best medicine in the world for children." [This, in German.]

"Cures bowel cramps and colicy pains, diarrhea and all children's diseases caused by teething." [This in German.]

These, and similar claims were declared by the government to be false and fraudulent and made knowingly and in reckless and wanton disregard of their truth or falsity. Boyd entered a plea of *nolo contendere*—neither admitting nor denying his guilt—and was fined $25.—[*Notice of Judgment No. 4101.*]

DR. HALE'S HOUSEHOLD OINTMENT

Henry O. Kenyon, Frank S. Kenyon and Charles H. Kenyon, trading as Kenyon & Thomas Co., Adams, N. Y., shipped in interstate commerce a quantity of "Dr. Hale's Household Ointment" which the federal authorities declared was misbranded. Claims such as the following were made for this ointment:

"A Positive Specific for the Speedy and Permanent Cure of Rheumatism, Lame Back, Neuralgia . . . Sciatica . . . Eczema, Erysipelas . . . and all Scaly Eruptions . . . Scrofulous Ulcers, Piles . . . Croup . . ."

"It has cured catarrh where all other known remedies have failed."

"For ulceration of the Womb, Leucorrhoea . . . It is very soothing and healing and has effected remarkable cures."

The ointment was analyzed by the federal chemists who reported that it was "composed of vaseline and camphor with a small amount of aromatics resembling oil of thyme." The claims quoted above, and others of a similar nature, constituted misbranding in the opinion of the federal officials who charged that they were "false and fraudulent" and were made "knowingly and in reckless and wanton disregard of their truth or falsity." The defendants pleaded guilty and were fined $10.—[*Notice of Judgment No. 4093.*]

DR. GREENE'S NERVURA

Frank A. and Jarad A. Greene, trading as Drs. F. A. and J. A. Greene, Boston, shipped in interstate commerce a quantity of "Dr. Greene's Nervura" which the government declared misbranded. It was sold under such claims as:

"For Nervousness, Nervous Debility, Weakness, Poor Blood, Kidney and Liver Complaints, Rheumatism, Neuralgia, Female Weakness, Malaria, Chills and Fever, Exhausted Nervous Vitality, Nervous Prostration, Sleeplessness, Despondency, Mental Depression, Hysteria, Paralysis, Numbness, Trembling, Pains in the side and back, Apoplexy, Epileptic Fits, St. Vitus Dance, Palpitation, Nervous and Sick Headache, Dyspepsia, Indigestion, Loss of Appetite, Constipation, and all Affections of The Nervous System."

The government chemists reported that analysis showed the stuff to contain 18 per cent. of alcohol, while celery, ginger and other unidentified vegetable material were indicated. Charges of falsehood and fraud in the therapeutic claims was brought by the government and Frank A. and Jarad A. Greene entered pleas of *nolo contendere*, whereupon the court fined each $25.—[*Notice of Judgment No. 4149.*]

HILL'S FRECKLE LOTION

Fred L. Snow, Providence, R. I., shipped into Massachusetts a quantity of "Hill's Freckle Lotion" which government officials claimed was misbranded in violation of the Food and Drugs Act. According to the trade package, the preparation was "absolutely harmless when used externally according to directions." As the government chemists found that Hill's Freckle Lotion contained corrosive sublimate (mercuric chlorid) they naturally declared the stuff misbranded. Furthermore, the label bore the statement:

"Removes Moth, Tan, Freckles, Pimples, Ring Worms, and all Eruptions of the Skin."

This claim was declared to be false and fraudulent and applied knowingly and in reckless and wanton disregard of its truth or falsity. Snow at first pleaded not guilty, but later withdrew the plea and entered a plea of *nolo contendere*. He was fined $20.—[*Notice of Judgment No. 4115.*]

DR. HIATT'S GERMICIDE

The Hiatt Germicide Company of Richmond, Ind., was a trade name under which James A. and William F. Hiatt did business. The company sold "Dr. Hiatt's Germicide" under such claims as:

"Specific for Croup."

"Cures Smoker's Sore Throat."

"For Croup, Diphtheria, Quinsy, Sore Throat, Catarrh, Coughs, Colds."

"For the prevention and cure of diphtheria."

According to the Bureau of Chemistry, "the product was a sirup containing sodium benzoate, phenol [carbolic acid] alcohol, a small amount of glycerin, probably balsam tolu, and flavored with oil of wintergreen; it contained 6.1 per cent. of alcohol." James A. Hiatt and William F. Hiatt were charged with making false and fraudulent therapeutic claims knowingly and in reckless and wanton disregard of their truth or falsity. They pleaded guilty and were fined $100 and costs.—[*Notice of Judgment No. 4131.*]

PROPRIETARY MEDICAL JOURNALISM

Spain, also, is Afflicted with This Evil

The curse of commercialism in medical journalism is by no means confined to the United States. A protest against this evil now comes from Spain. Dr. C. Juarros in the *Siglo Medico* for Aug. 26, 1916, has an article on this subject, from which we extract certain parts, freely translated:

"On my table lies a medical journal that is published as a piece of commercial propaganda by a pharmaceutical manufacturer. It is distributed free. On the cover appear the names of a number of physicians as comprising the editorial staff, names that are well known for the scientific work their owners have published. That well-known physicians of standing should serve as standard bearers for the exploiters of medicines is surprising beyond belief. . . . Every one knows that one of the reasons our profession has not realized its highest aspirations is because of the financial difficulties that beset the medical press of this country [Spain]. The majority of our professional journals make no profits or very meager ones. For the lack of a strong and influential medical press our best efforts fail and are sterile of results and our scientific prestige in other countries is not commensurate with our actual culture. Medical 'hispano-americanism' is still but a dream, and the diffusion of medical science and knowledge proceeds slowly and with difficulty.

"This is no secret. Why, then, do well-known physicians permit their names to be used as a lure so that their colleagues will be enticed to open the pages of medical house-organs there to read an impassioned pean on the excellencies of this or that panacea. There are but one of three explanations: financial interest, vanity or thoughtlessness. The idea of financial interest may be discarded, for we cannot believe that those names are there as a paid advertisement, for the physicians are men of the highest honor, and the idea of them granting their personal prestige to serve as decoys is inconceivable. The second reason, vanity, seems equally unacceptable. No one with any sense can envy the notoriety acquired by being blazoned forth on the cover of a pharmaceutical house-organ. This leaves thoughtlessness as the only explanation. The names appear there because they were put there and the owners of the names apparently care neither whether they were put on or taken off.

"But the assurance of good faith on the part of these physicians is no excuse when their action results in a positive and serious evil. High-grade medical journals lead a precarious existence, due in no small degree to the fact that these other iniquitous commercial publications are distributed free. Nor is this the only evil. These house-organs cause the worship of proprietaries, thus working great harm to the science of medicine by making unthinking, unscientific machines of physicians. They harm the sick also, who, instead of receiving medicines adapted to their individual cases, get stock preparations of a general and arbitrary pattern. The pharmacists likewise find their shops changed into orde-

nary stores selling merely bottles and boxes to the detriment not only to their financial interest, but to their scientific standing.

"Every physician should combat in every way this commercialized medical press in which everything inevitably tends to the glorification and apotheosis of the proprietaries put out by the companies publishing such journals."

Correspondence

First Aid and Preparedness

To the Editor:—The most important economic movement in America today, both from a humanitarian and a commercial point of view, is the conservation of human resources. This idea is rapidly gaining in popularity, as is manifested by the ever-increasing effort of agencies to prevent the needless waste of life and the spread of such diseases as tuberculosis, malaria and typhoid fever. It is manifested to a marked degree in the great field of industry, by the serious attention which is being directed toward the problem of preventing unnecessary injuries and illness incurred by industrial workers. The movement has already resulted in reducing sickness and accidents.

At the time of an accident or an acute illness, a person who knows how to render first aid is invaluable. Nowhere has this been more clearly proved than in the European war, where "first aid" is saving many lives. It is said that the fate of an injured person depends on the man into whose hands he falls. I recently heard a noted army officer say that he would rather have a well-trained first-aid team in time of war than six of the best surgeons in the United States, as he was quite positive that it would be of more service to the fighting man. In view of the importance of men thoroughly trained in first-aid assistance wherever accidents or injuries are liable to occur, such training among army men is one of the most necessary branches of instruction for preparation for either war or peace.

During many years' experience in training men and women in such work, I have always been an advocate of simplified method and practical adaptation of whatever means happen to be at hand when assistance is needed. In my lectures and demonstrations to soldiers of the national guard, I have endeavored to impress on them the real duties and responsibility of the first-aid man: how he must act quickly and think more quickly without waiting for orders, assistance or supplies, remembering that the fate of his wounded comrade lies in his hands; and that lacking, as he does, the experience of a well-trained nurse, he yet must act with judgment and caution, and along the line of surgical practice.

The lesson of the European war is that of preparedness. This has found its echo in our country, where the question of the day is that of national preparedness against war. We are, however, a people of peculiar temperament, holding our allegiance with tenacity to only two issues, our politics and our religion. I trust we as a nation will add preparedness as a third and vital issue.

First-aid preparedness means application of efficiency to the conservation of health and life; prevention of those diseases which cause a more or less rapid disintegration of a nation, and then coordination of the life-saving with the life-destroying branches of the industries of our country. This can be attained only by a campaign of education, forcing the public to realize the patent fact that efficient men and women trained in rendering first aid to the injured constitute an asset of incalculable value in time not only of war, but also of peace. Let preparedness become the watchword of the hour. As we push "safety first" to the forefront in connection with the preservation of the public health, so preparedness assumes its rightful position in caring for public weal. Conservation of human life and human energy is by far the most important question before the American people today, and to teach them along this line is a step in the right direction.

WALTER S. ROUNTREE, M.D., Birmingham, Ala.
Consulting Surgeon, U. S. Bureau of Mines.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

UNNA'S PASTE IN TREATMENT OF VARICOSE ULCERS

To the Editor:—Please give the treatment for varicose ulcer according to the method of A. J. Ochsner.

M. H. SMITH, M.D., Rock Island, Ill.

ANSWER.—According to Ochsner, in the treatment of varicose ulcers of a mild form, Unna's paste frequently will cause the ulcers to heal or will restore the veins so that they will again act normally, provided the patient does not stand too much in his work. The paste is made by dissolving four parts of the best sheet gelatin in ten parts of water heated over a water bath, the mixture being constantly stirred; while hot, ten parts of glycerin and then four parts of zinc oxid powder are added.

By means of an ordinary paint brush, this paste is applied to the leg as thickly as possible and as hot as the patient can stand it without irritation. Then a 2 inch thin gauze roller bandage is applied over this carefully so as to make no wrinkles and without tension. The outer surface of this bandage is again painted in the same manner, and a further roller bandage is applied. This process is repeated until about four thicknesses of paste and bandages have been applied, when a final bandage is applied without the addition of any further paste in order that the outer surface of the boot which is formed in this way may not stick to the bedclothes.

During the application of this boot, the foot should be held at a little less than a right angle to the leg. The patient is permitted to walk and go to work. The boot usually remains in good condition from six to eight weeks, when a new one is reapplied. This usually has to be repeated from three to six times.

This treatment is also used for several months after the excision of large varicose veins for the cure of large varicose ulcers. In these cases the ulcer is covered with Thiersch skin grafts, which are allowed to become thoroughly firm before the Unna's paste boot is applied.

BLOOD TRANSFUSION

To the Editor:—1. By whom, where and when was the first authentic blood transfusion performed?

2. Who was the first to use the syringe method of transfusion, and when?

3. Who first used citrated blood in transfusions, and when?

4. Please give a bibliography of transfusion articles, especially the indirect methods.

Kindly omit name and address. M. Y. D.

ANSWER.—1. It is impossible to say definitely when the first blood transfusion was performed. According to J. L. Joughin (THE JOURNAL, Feb. 14, 1914, p. 553), who refers to Villari's "Life of Savanarola," the first transfusion of which we have record occurred in an attempt to prolong the life of Pope Innocent VIII. This attempt was made in April, 1492. Three times it was attempted to pass the blood of the pope into the veins of a youth whose blood was retransfused into those of the old man. The experiment cost the lives of three boys and was not successful in saving the life of the pope. Previous to this, vague references to such operation had been made from time to time, at least so far back as the Augustan era. In June, 1667, Jean Baptiste Denys, physician to Louis XIV, is reported to have transfused the blood of a calf or lamb into the veins of a young man dying from repeated venesection. The patient survived, and apparently recovered his health. It is also reported that Francesco Folli, born in 1624, demonstrated the operation of transfusion of blood before the grand duke of Tuscany. In November, 1666, according to the diary of Samuel Pepys, blood transfusion from one dog to another was performed.

2. Probably the first indirect method of blood transfusion used was to defibrinate blood and then reinject. This method was given up because of the possibility of infection and changes in the blood resulting from such treatment. In 1911, Curtis and David announced a combined syringe-cannula method. In 1913, Lindeman described a method of transfusion by the use of several record syringes and special cannulas. This method has been variously modified and improved. Consultation of the references given below shows the steps in this improvement.

3. The first use of citrate in blood transfusion was probably that published by Hustin. This method was further developed by Weil, who suggested the use of 1 per cent. citrated blood, and by Lewisohn and Agote who have shown that 0.2 or 0.25 per cent., respectively, are the safest dosages. References are given below.

4. The following references may be consulted:

Lindeman, Edward: Simple Syringe Transfusion with Special Cannulas, *Am. Jour. Dis. Child.*, July, 1913, p. 28.
Curtis, A. H., and David, V. C.: Transfusion of Blood by a New Method, THE JOURNAL, Jan. 7, 1911, p. 35.
Unger, L. J.: A New Method of Syringe Transfusion, THE JOURNAL, Feb. 13, 1915, p. 582.
Abelmann, H. W.: New Method and Apparatus for Transfusion of Blood, THE JOURNAL, April 17, 1915, p. 1315.
Hustin: Principe d'une nouvelle methode de transfusion muqueuse, *Jour. méd. de Bruxelles*, 1914, xii, 436.
Weil, Richard: Sodium Citrate in the Transfusion of Blood, THE JOURNAL, Jan. 30, 1915, p. 425.
Lewisohn: *Med. Rec.*, New York, 1915, lxxxvii, 141.
Agote, Luis: Nuevo procedimiento para la transfusión del sangre, *An. d. Inst. med. de clin. méd.*, January, 1915.

For a general review of the subject, the following references may be consulted:

Transfusion of Blood, editorial, THE JOURNAL, Oct. 16, 1915, p. 1368.
Hemorrhagic Conditions, Therapeutics, THE JOURNAL, June 17, 1916, p. 1923; June 24, 1916, p. 2068.
Satterlee, H. S., and Hooker, R. S.: Transfusion of Blood, with Special Reference to the Use of Anticoagulants, THE JOURNAL, Feb. 26, 1916, p. 618.

LOTION FOR THE FACE

To the Editor:—1. Please suggest an efficient prescription to whiten and soften the skin of the face and yet not cause superfluous hair. 2. Also an application to be used on a very sensitive skin after shaving.

A. P. M.

ANSWER.—1. A good preparation to soften the skin and to whiten it is a bland ointment. One of the best ointments of this sort is the official cold cream. There is no better cold cream than the official cold cream if it is well made. It seems doubtful that cold cream, petrolatum or any other grease will cause a growth of hair, although many persons who have a superfluous growth of hair believe that this is true. If superfluous growth of hair occurs, they are determined to lay the blame for it on something. Sometimes it is laid to the use of hot compresses on the face or of a hot water bag for toothache, or of some irritating application that a physician has prescribed, but the commonest thing to invoke is some perfectly innocent cold cream or petrolatum. There are some skins, which are already too greasy, to which an application of cold cream is not desirable. A good substitute for cold cream is a tragacanth lotion such as the one for which prescription is given below. It cleans the skin well, it does not leave it greasy as a cold cream does, and it is a good toilet application.

	gm. or c.c.	
Tragacanth	4	ʒ i
Glycerin	30	ʒ ii
Boric acid	11	ʒ iii
Oil of bergamot	66	gtt. x
Water q.s.ad	500	O i

Liquefy by slow boiling with constant stirring.

2. The same prescription as is given above may be used as a shaving lotion on a sensitive skin.

EXEMPTIONS UNDER THE HARRISON LAW

To the Editor:—Under the law and the present construction of the law, if a physician dispenses his own remedies is he violating the law when he puts 1 grain of morphin in a 4 ounce cough mixture and fails to make a record of the same?

J. S. W.

ANSWER.—The Harrison law provides "that the provisions of this act shall not be construed to apply to the . . . dispensing . . . of preparations and remedies which do not contain more than . . . one fourth of a grain of morphine . . . in one fluid ounce, etc."

The preparation described would seem to come within the letter of the law, provided it is dispensed as a medicine and not for the purpose of evading the law. But Treasury Decision 2172 provides that exemptions apply only to United States Pharmacopeia standard preparations or to remedies prepared under private formula such as are usually carried in stock by druggists and dispensed without prescriptions (in other words, "patent medicines"). A mixture prepared and dispensed by a physician would probably not be regarded as coming under either one of these heads. Under Section 6 of the Harrison law and Treasury Decision 2172, each physician must keep a record of all narcotic drugs dispensed. A failure to keep such a record would constitute a violation of the law.

The Harrison law was enacted to provide a complete record of all transactions involving opium or cocain or any of their derivatives. The object of such a record is to make possible the enforcement of state laws. The best thing for all physicians to do, when in doubt, is to make a record. Then no criticism can arise. Perhaps our correspondent might be within the letter of the law in dispensing such a mixture as he describes, without any record of such transaction, but there is no reason why he should not make a record of it; and if he does, then his acts cannot be subject to criticism.

TRANSMISSION OF SYPHILIS

To the Editor:—1. Is it possible for a child to be born syphilitic without the Wassermann reaction being positive in the mother for any period after? 2. Are there any such cases on record? If so, where can I find an account of them? 3. Is it possible for the mother to have no manifestations of syphilis until the baby is put to breast, and then develop them?

C. B. BROMBERG, M.D., Chicago.

ANSWER.—1. It is possible for a child to be born syphilitic without a positive Wassermann reaction appearing in the mother at that time or at any time thereafter. In such a case the mother is always syphilitic, but the Wassermann reaction is negative in about 20 per cent. of cases of syphilis, and syphilitic mothers can, like other syphilitic patients, show negative Wassermann reactions.

2. Such cases will be found reported in most textbooks taking up this subject. For example, in Marchildon's book, "The Wassermann Reaction," Boas is quoted on the relation of the Wassermann reaction in the mother and child, and a positive reaction in the child with a negative reaction in the mother is given among the possible combinations.

3. A mother, previously free from manifestations of syphilis, might show them at the time the baby is put to breast, provided she had become infected during her pregnancy. It should also be remembered that the mother might have shown evidence of syphilis previously, and the lesions have passed unrecognized, or they might have been so insignificant that the condition was not recognized.

GLANDULAR THERAPY AS GALACTAGOGUE

To the Editor:—Please refer me to literature relating to the effect of glandular therapy on the secretion of the breast, either experimental or clinical.

ALLAN R. CUNNINGHAM, M.D., Boston.

ANSWER.—Lane-Clayton and Starling, and others, have shown that an extract of the fetus or placenta will produce hyperplasia of the nonlactating mammary gland, but has no effect on secretion of milk. Mackenzie claims that the mammary gland contains a true galactagogue or milk-producing hormone. This would be of great clinical importance, if true, but Gavip's results contradict Mackenzie's. Gaine's work also renders it probable that Mackenzie was in error. At present there appears to be no rational or useful organotherapy of the mammary gland.

The following original references may be consulted:

Gaines: *Am. Jour. Physiol.*, 1915, xxxviii, 285.
Gavin: *Quart. Jour. Exper. Physiol.*, 1913, vi, 13.
Lane-Clayton and Starling: *Proc. Roy. Soc.*, 1906, p. 517.
Mackenzie: *Quart. Jour. Physiol.*, 1911, iv, 22.
The Functions of the Corpus Luteum, editorial, THE JOURNAL, July 4, 1914, p. 32.
Corpus Luteum and Mammary Gland, Current Comment, THE JOURNAL, Aug. 30, 1913, p. 689.

REMOVAL OF BLOOD STAINS

To the Editor:—What will remove blood stains from cotton cloth (mattress)?

J. H. LINDSEY, M.D., and W. A. PICKENS, M.D., Bentonville, Ark.

ANSWER.—According to the *Druggists Circular* (January, 1913, p. 13), blood stains may be removed by treatment with a concentrated solution of chloral hydrate (from 70 to 80 per cent.). Not only recent blood stains on lint, cotton or other tissues and subtrates, but even blood stains existing for from ten to twenty and more years, first moistened with a drop of acetic acid and then soaked for one or several hours in the above-mentioned chloral solution, are said to be so thoroughly extracted that scarcely a shade of the original deep-brown-red color will remain.

Blood stains on white material may also be removed by treatment with hydrogen peroxid solution. It may take some hours to act if the stain is old.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

DELAWARE: Dover and Wilmington, Dec. 12-14. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

FLORIDA: Regular, Palatka, Dec. 5-6. Sec., Dr. E. W. Warren, Palatka.

KENTUCKY: Louisville, Dec. 11-13. Sec., Dr. A. T. McCormack, Bowling Green.

LOUISIANA: New Orleans, Nov. 30-Dec. 2. Sec., Dr. E. L. Leckert, 716 Macheca Bldg., New Orleans.

MARYLAND: Regular, Baltimore, Dec. 12. Sec., Dr. J. McP. Scott, 137 W. Washington St., Hagerstown.

MISSOURI: St. Louis, Dec. 11-13. Sec., Dr. J. A. B. Adcock, Jefferson City.

NEW HAMPSHIRE: Concord, Dec. 18-19. Sec., Dr. W. T. Crosby, Beacon Bldg., Manchester.

OHIO: Columbus, Dec. 5-7. Sec., Dr. Geo. H. Matson, State House, Columbus.

VIRGINIA: Richmond, Dec. 12-15. Sec., Dr. J. N. Barney, Fredericksburg.

Bogus Diplomas Being Issued?

A diploma of the Dallas Medical College, dated April 1, 1904, and issued to one "Bishen Singh Mutto," was found in the possession of a man named Warrick in Shreveport, La., by Dr. Oscar Dowling, health officer of Louisiana. On Warrick's desk was seen a business card giving the following information: "Bishen Singh Mutto, Pinjah, India, General Commercial Agent, 329 South San Joaquin, Stockton, California." The card indicated also that Mutto was a job contractor for several different lines of work. The diploma was evidently fraudulent. A photographic reproduction of it shows eighteen names signed to it, all of which were apparently written by one individual, although crude attempts had been made to disguise the writing. The diploma was doubtless from the old plate of the Dallas Medical College in 1904, the year it became extinct. Mutto's name is not found on the lists obtained of those who graduated from this college in 1904, or any other year. Licensing boards are advised to be on the lookout for these bogus diplomas.

Alabama July Report

Dr. W. H. Sanders, chairman of the Alabama State Board of Health, reports the written examination held at Montgomery, July 10-13, 1916. The total number of subjects examined in was 10; total number of question asked, 100; percentage required to pass, 75. The total number of candidates examined was 63, of whom 46 passed and 17 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Birmingham Medical College		(1913)	79.6
University of Alabama		(1915) 77.2, 85.9; (1916)	77.1, 79.8, 81.4, 81.9, 82.1, 82.6, 83.6, 83.7, 83, 86.2, 87, 87, 89.1
Atlanta Medical College		(1916) 76.5, 78.1, 78.9, 78.9,	80.4, 83.1, 83.1
University of Georgia		(1912)	73.5
University of Louisville		(1916)	79.5
Tulane Univ. of Louisiana		(1915) 80.9; (1916)	81.5, 83.3, 84.6, 87.4, 88.3
University of Oklahoma		(1912)	81.9
Jefferson Medical College		(1912)	83.9
Meharry Medical College		(1915) 80.2; (1916)	75, 78.3
University of Tennessee		(1916) 75, 75.6, 76.9,	81.7
Vanderbilt Univ.		(1914) 76.3; (1915) 81.4; (1916)	76.8, 81.9, 86
	FAILED		
Birmingham Medical College		(1915)	48.7, 59.7
University of Alabama		(1916)	67.3
Atlanta Medical College		(1916)	71.1, 71.5, 72.6
Bennett Medical College		(1915)	66.9
Mississippi Medical College		(1910)	70.2
St. Louis University		(1913)	73.5
Meharry Medical College		(1910) 47.4; (1912) 61.2;	1916) 53.1, 67.8
Memphis Hospital Medical College		(1912)	61.4
University of Tennessee		(1916)	70.9, 74
Vanderbilt University		(1915)	68.3

District of Columbia July Report

Dr. Edgar P. Copeland, secretary of the Board of Medical Supervisors of the District of Columbia, reports the oral and written examination held at Washington, July 11-13, 1916. The total number of subjects examined in was 17; total number of questions asked, 80; percentage required to pass, 75. The total number of candidates examined was 13, of whom 10 passed and 3 failed. Four candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Georgetown University		(1915)	84.1
George Washington University		(1907), 77.9; (1908)	84.3; (1915) 75.9; (1916) 76.5, 77.1, 77.5, 80.6, 83.1, 85.1.
	FAILED		
University of Maryland		(1915)	70.4
Meharry Medical College		(1913) 62.9; (1916)	63.7

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Georgetown University		(1908)	Maryland
George Washington University		(1912)	Maine
Baltimore University		(1896)	Maryland
Syrian Protestant College, Beirut		(1872)	Virginia

Maine July Report

Dr. Frank W. Searle, secretary of the Maine State Board of Registration in Medicine, reports the practical and written examination held at Portland, July 6-7, 1916. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 16, of whom 14 passed and 2 failed. Six candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Total No. Licensed
Bowdoin Medical School		(1916)	9
University of Maryland		(1916)	1
Harvard University		(1916)	1
Tufts College Medical School		(1916)	1
Dartmouth Medical School		(1910)	1
New York Homeo. Med. Coll. and Flower Hosp.		(1916)	1
	FAILED		
Bowdoin Medical School		(1916)	1
Baltimore Medical College		(1896)	1

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Johns Hopkins University		(1901)	Dist. Colum.
University of the South		(1901)	Vermont
University of Vermont		(1890) (1891) (1915)	Vermont
University of Virginia		(1911)	New Jersey

Massachusetts July Report

Dr. Walter P. Bowers, secretary of the Massachusetts Board of Registration in Medicine, reports the oral, practical and written examination held at Boston, July 11-13, 1916. The total number of subjects examined in was 14; total number of questions asked, 75; percentage required to pass, 75. The total number of candidates examined was 123, of whom 87 passed, including 11 osteopaths, and 36 failed, including 17 osteopaths. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Georgetown University		(1915)	77.2
Chicago College of Medicine and Surgery		(1912) 78; (1916)	84.7
Baltimore Medical College		(1913)	79.3
Johns Hopkins University		(1916) 76.2,	79.5, 81.5
Maryland Medical College		(1913)	75
University of Maryland		(1916)	82.4
Boston University		(1914) 78.9; (1916) 75, 76.6, 76.6, 78.2,	80.1
College of Physicians and Surgeons, Boston		(1916) 73, 75.7	77.2
Harvard University		(1912) 75.2; (1914) 81.3, 82.8, 83.5; (1915)	75; (1916) 75.3, 76.5, 77.2, 79.4, 80, 80, 80.1, 80.4, 81, 82, 83.7, 86.5
Tufts College Medical School		(1915) 76.9; (1916)	75, 75, 75.2, 75.5, 76.2, 76.5, 76.9, 76.9, 77.3, 77.5, 77.5, 77.6, 77.6, 77.7, 77.7, 78.5, 78.7, 78.7, 78.8, 78.9, 79.2, 79.4, 79.5, 80, 80.2, 80.5, 81, 81.2, 81.3, 82, 82.4, 82.5, 83.6.
Columbia University, College of Phys. and Surgs.		(1915)	81.6
Jefferson Medical College		(1916)	79.8
University of Pennsylvania		(1916)	80.8
University of Texas		(1915)	78.4
University of Vermont		(1916)	77.4
Montreal School of Medicine and Surgery		(1913)	76
University of St. Joseph, Beirut		(1894)	75
	FAILED		
Georgetown University		(1913)	71.7
Chicago College of Medicine and Surgery		(1916)	65
Baltimore Medical College		(1909)	72.4
Maryland College of Eclectic Medicine and Surgery*		(1914)	72.8
Maryland Medical College		(1912)	58.3
University of Maryland		(1916)	73.3
Boston University		(1915)	67.3
Coll. of Phys. and Surgs., Boston		(1916) 58.7, 63.5, 67.3, 72.2,	73.1, 73.4
Tufts College Medical School		(1915) 70.5, 72.5; (1916)	71.2, 73.8
Albany Medical College		(1915)	72.1
University of Geneva		(1913)	†

* Officially reported as not recognized by the Maryland State Board of Medical Examiners.

† No grade given.

North Dakota July Report

Dr. G. M. Williamson, secretary of the North Dakota State Board of Medical Examiners, reports the oral, practical and written examination held at Grand Forks, July 4-7, 1916. The total number of subjects examined in was 13; total number of questions asked, 110; percentage required to pass, 75. The total number of candidates examined was 10, all of whom passed. Seven candidates were licensed through reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Chicago College of Med. and Surg.	(1915)	80
Rush Medical College	(1914) 78.6; (1915) 85; (1916	80
Medical College of Indiana	(1902)	75.1
Tulane University of Louisiana	(1916)	78.7
Maryland Medical College	(1912)	75
Harvard University	(1916)	81
Marquette University	(1912)	75
Eclectic Medical College	(1894)	*

College LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Northwestern University	(1913)	Illinois
Coll. of Phys. and Surgs., Chicago	(1909)	Illinois
Indiana University	(1908)	Indiana
University of Michigan Medical School	(1907)	Minnesota
University of Minnesota	(1912) (1913)	Minnesota
Washington University	(1913)	Missouri

* No grade given.

Vermont July Report

Dr. W. Scott Nay, secretary of the Vermont State Board of Medical Registration, reports the oral, practical and written examination held at Burlington, July 11-13, 1916. The total number of subjects examined in was 12; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 14, all of whom passed. Two candidates were granted reregistration licenses. Four candidates were licensed through reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Tufts College Medical School	(1916)	83.1
University of Vermont	(1913) 89.1; (1915) 81.1, 85.1, 88.7, 89.1; (1916) 82.5, 83.1, 84.8, 85.6, 85.7, 86.8, 88.1	
Montreal School of Medicine and Surgery	(1912)	82.4

College LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Harvard University	(1904)	New Hamp.
Dartmouth Medical School	(1914)	New Hamp.
Albany Medical College	(1898)	New Hamp.
University of Pennsylvania	(1898)	Penna.

Book Notices

THE CONTROL OF HUNGER IN HEALTH AND DISEASE. By Anton Julius Carlson. Cloth. Price, $2. Pp. 319, with illustrations. Chicago: The University of Chicago Press, 1916.

This book represents a summary of the work on the stomach, with special reference to hunger and appetite, carried out in Professor Carlson's department at the University of Chicago during the last four years. The book discusses hunger in its protean aspects. The first two chapters concern the biologic significance of hunger and a historical review of the subject. Carlson then describes the mechanism of the study, and finally analyzes hunger in its relation to health and disease. Of course, it is hardly possible to discuss hunger without at the same time considering its corollary—appetite. The "hunger urge," as Carlson points out, is "even more fundamental and primitive than the sexual urge," for feeding is necessary to all forms of life, while sexual reproduction is not.

The work was carried out in man and animals by three different procedures: direct inspection by means of a permanent opening into the stomach through the abdominal wall, the introduction of a rubber balloon into the stomach, and the introduction into the stomach of a balloon coated with bismuth permitting Roentgen ray and fluoroscopic study. Dr. Carlson was, fortunately, in possession, during the last four years, of a "second Alexis St. Martin," and many of the direct studies were made with the aid of this interesting assistant.

As practically all of the work has previously appeared in medical, and particularly in physiologic, publications, it is unnecessary to repeat the findings. It is sufficient to say that they have a direct application not only to the physiologic or normal conditions, but to disease as well. Carlson found that smoking inhibits the gastric hunger contractions; he found that belt constriction appeared to diminish or interfere with the hunger sensation, and that muscular activity may augment the gastric hunger activity, etc. Further, when the appetite fails it has been the custom to give the so-called bitters in the hope of stimulating the appetite. It was found that "in therapeutic quantities the bitters, acting in the stomach alone, have no effect on the gastric tonus or the gastric hunger contractions or on the parallel sensation of hunger. In greater than therapeutic doses the bitters inhibit the hunger contractions and abolish the hunger sensation, probably by stimulation of nerve-endings in the gastric mucosa. Acting in the mouth alone, the bitters, even in traces, inhibit the hunger contractions and abolish the hunger sensations in direct proportion to the intensity and duration of the stimulation in the mouth, and there is no after-effect in the way of augmentation of hunger contractions and hunger sensations."

It can be seen that this work is of the greatest significance as the beginning steps in a scientific study of normal and pathologic gastric processes. The book is accompanied by a bibliography of the important work on hunger to the date of its publication, and by a good index.

THE MOTHER AND HER CHILD. By William S. Sadler, M.D., Professor of Therapeutics, Post-Graduate Medical School of Chicago, and Lena K. Sadler, M.D., Associate Director of the Chicago Institute of Physiologic Therapeutics. Cloth. Price, $1.50 net. Pp. 456, with illustrations. Chicago: A. C. McClurg & Co., 1916.

The Drs. Sadler, who have written prolifically for the public, present here a comprehensive book on the care of the mother and her child, in response, according to the preface, to demands made on them by patients, the public and their publishers. The book is dedicated to their own child, and is said to represent their experiences "both as parents and physicians." It is in three parts, on the mother, the baby and the child. The advice is generally sound, and answers most of the questions which inquiring mothers put to physicians and teachers. Their opinions express, in most instances, medical thought as derived from current literature. The authors do not seem to have had clearly in mind current usage as regards petrolatum, liquid petrolatum, vaseline and albolene. They counsel against the use of "patent medicines," but apparently have not greatly concerned themselves about so-called ethical proprietaries. A mouth wash recommended in the appendix contains listerine and sodium bicarbonate—certainly a peculiar combination! Listerine appears also in a lotion for eczema. One wonders if the authors are familiar with the composition of listerine; if so, why multiply its ingredients? Among the best features of the book are the unusual chapters devoted to the nervous child, growth and development, caretakers and governesses, play and recreation, and teaching truth. In these chapters common sense is presented in most readable language.

LESSONS IN PHARMACEUTICAL LATIN AND PRESCRIPTION WRITING AND INTERPRETATION. By Hugh C. Muldoon, Ph.G., Instructor in Organic and Analytical Chemistry and Latin, Massachusetts College of Pharmacy. Cloth. Price, $1.25 net. Pp. 173. New York: John Wiley & Sons, 1916.

This book is designed to present, in a simple and practical manner, such rudiments of Latin as will enable the pharmacist to interpret correctly those portions of the language which he may encounter in the practice of his profession. Especial attention has been given to the writing of titles, and to prescriptions. Detailed explanation of metric prescriptions is given. An unusually large number of prescriptions is presented, many of these having been selected from the files of prominent drug stores of Boston and vicinity. The book should be useful to the physician as well as the pharmacist.

Social Medicine, Medical Economics and Miscellany

SPIROCHAETA PALLIDA OR TREPONEMA PALLIDUM?

WILLIAM ALLEN PUSEY, A.M., M.D.
CHICAGO

The commonly used name for the organism of syphilis is *Spirochaeta pallida*. There is, however, a great deal of confusion as to whether that term is correct, or whether the organism should not be called the *Treponema pallidum*. In general, the situation seems to be that nearly every one has a vague feeling that *Treponema pallidum* is correct, but, in spite of this, uses *Spirochaeta pallida*.

This confusion had its origin in the uncertainty of Schaudinn himself as to what the organism should be called. He first named it *Spirochaeta pallida*, then *Spironema pallidum*, and then invented for it the new name *Treponema pallidum*. In inventing this new name, his point was to emphasize that the organism of syphilis had essential structural differences from the spirochetes, of which *Spirochaeta plicatilis* is the type species. Authorities are not yet agreed on this point, and, because of Schaudinn's lamented death soon after the discovery of his organism, we cannot know whether or not Schaudinn would have persisted in his belief in the essential peculiarities of his organism. It is certainly true that the organism of syphilis so closely resembles other organisms for which the name Spirochaeta alone is used that usage has found it extremely difficult to preserve for the organism of syphilis another name than that of the *Spirochaeta pallida*.

Authoritative usage determines proper linguistic forms. It will ultimately determine the proper name for the organism of syphilis, if it has not already done so. It is of interest, therefore, to see what usage is accepting as the name for Schaudinn's organism. General usage is overwhelmingly in favor of *Spirochaeta pallida*. *Treponema pallidum* is used with such relative infrequence that most persons who read much of syphilology involuntarily notice its use as peculiar. But common usage is very different from authoritative usage, and it is interesting to see what good usage is on this point.

The first writers who naturally suggest themselves for this examination are Metchnikoff, Hoffmann, Neisser and Ehrlich. All these use *Spirochaeta pallida*. Metchnikoff's observations on this particular point are so pertinent that they may be quoted:

> We may well conclude this chapter by adding a few words as to the actual name given to the organism of syphilis. Schaudinn, after having first given it the name of *Spirochaeta pallida*, joined later on with Vuillemin in renaming it *Spironema pallidum*; however, after he had found that the name of Spironema had already been made use of to describe another kind of micro-organism, Schaudinn invented a new name, *Treponema pallidum*. At the same time, however, Hoffmann—whose collaboration with Schaudinn had been already of such great value in the progress of our knowledge of this organism—abandoned this name, and used that of *Spirochaeta pallida* or *Spirochaete pallidum*. I shall follow the example of this German syphilographer, as I consider that the time is still premature to make any classification of spirillar micro-organisms.

As Metchnikoff says, Hoffmann used *Spirochaeta pallida* and has continued to do so.

Neisser, who is the foremost living authority on experimental and clinical syphilis, in his "Beiträge zur Pathologie und Therapie der Syphilis," 1911, uses *Spirochaeta pallida*.

Ehrlich and Hata in their "Experimental Chemotherapy of Spirilloses," use *Spirochaeta pallida*. Treponema does not even occur in the index.

Uhlenhuth and Mulzer, in their "Atlas der Experimental Kaninchen Syphilis," 1913, the authoritative book on experimental syphilis, use *Spirochaeta pallida*.

Noguchi in general has used *Spirochaeta pallida*, although he has shown some of the common confusion and made an effort to use the other term at times.

Wechselmann, in his "Treatment of Syphilis with Salvarsan," uses *Spirochaeta pallida*. Treponema does not occur in the index.

Mracek's representative German "Handbuch der Hautkrankheiten," 1909, uses *Spirochaeta pallida*.

Riecke's "Lehrbuch der Haut und Geschlechts-Krankheiten," 1912, uses *Spirochaeta pallida*. Treponema does not occur in the index.

In the *Transactions of the Eleventh Dermatological Congress*, Vienna, September, 1913, there are five articles under the title *Spirochaeta pallida*. Treponema does not even appear in the index.

Andrewes, in his article on the pathology of syphilis in the monumental British "System of Syphilis," uses *Spirochaeta pallida*, as does Metchnikoff in his article on the "Microbiology of Syphilis," in the same work.

McIntosh and Fildes, in their book, "Syphilis from the Modern Standpoint," and Browning and McKenzie, in their "Recent Methods in the Diagnosis and Treatment of Syphilis," two of the most modern books on the subject, both use *Spirochaeta pallida*.

Adami and Nichols, in their "Pathology," which is, perhaps, the most authoritative recent English work on that subject, use *Spirochaeta pallida*.

Osler and Churchman, in their article on syphilis in "Osler's Modern Medicine," use *Spirochaeta pallida*. *Treponema pallidum* is mentioned only as the synonym of *Spirochaeta pallida*.

The only authority examined who uses Treponema was Darier. In his "Precis de Dermatologie," 1909, he uses Treponema exclusively, both in text and in index; and he is consistent in it, using not only the Latin form, but, when he uses the modernized form, using treponemes.

I have examined the representative journals of syphilis in various countries with the following results:

The *Archiv für Dermatologie und Syphilis* uses *Spirochaeta pallida*. In the index everything is placed under Spirochaeta. Treponema is given only to refer to Spirochaeta. This is the oldest and most authoritative journal on syphilis, not only of German speaking countries, but also of the world.

Hoffmann's journal, the *Dermatologische Zeitschrift*, uses *Spirochaeta pallida*, as Hoffmann himself has always done.

Unna's journal, the *Dermatologische Wochenschrift*, uses *Spirochaeta pallida*. The index contains no reference to Treponema.

In the *Berliner klinische Wochenschrift*, 1914, *Spirochaeta pallida* is used exclusively. Treponema is not in the index. The same is true of the *Deutsche medizinische Wochenschrift* for 1913.

The *British Journal of Dermatology* uses *Spirochaeta pallida*, and does not even mention Treponema in the index.

The *Journal of Cutaneous Diseases* uses *Spirochaeta pallida*. Treponema is given in the index only to refer to Spirochaeta.

In the French journals, *Spirochaeta pallida* is not used so exclusively as in the German. The two names are used—with, however, a very distinct preponderance in favor of *Spirochaeta pallida*.

In the *Annales de dermatologie et de syphiligraphie*, 1913, under "Bacteriology of Syphilis," both *Spirochaeta pallida* and *Treponema pallidum* are used. It is of interest to enumerate the usage of the different writers, because all are men in international reputation in syphilology. The following use *Spirochaeta pallida* in the titles: Dohi and Hidaka, Noguchi, Nakano, Schereschewski, Tomaczewski, Sowade and Vorpahl. The following use *Treponema pallidum:* Levy-Bing, Fontana, Lannoy and Levaditi.

In the *Presse médicale*, 1913, *Spirochaeta pallida* is used under six titles, and *Treponema pallidum* under two.

In the *Annales des maladies vénériennes*, 1912, *Treponema pallidum* is used in one title, and *Spirochaeta pallida* in six.

The *Gazette des hôpitaux*, 1913, is the only journal examined in whose index *Treponema pallidum* is used exclusively. Spirochaeta is used only for *Spirochaeta gallinarum*.

Of course, the list is not exhaustive, but the books and journals examined were chosen because of their authoritative character, and in them are presented the usage of the greatest and most authoritative names in modern syphilology. It is peculiarly significant that in German literature, in which, because of pride in the achievements of Schaudinn and Hoff-

mann, the name *Treponema pallidum* would be expected to be preserved, if anywhere, the name *Spirochaeta pallida* is almost universally used. It is only in French literature that this examination showed any use of *Treponema pallidum*, and here the preponderance was in favor of *Spirochaeta pallida*.

The name *Treponema pallidum* seems to linger in the literature of syphilis only where it is maintained through loyalty to the memory of Schaudinn, or occasionally where there is an excessive effort at purism. As a matter of fact, the grounds for inventing the new name, Treponema, and erecting a new species of Treponemata are not yet established, and are evidently not sufficiently conclusive to induce authorities the world over to forego the manifest advantages of the name *Spirochaeta pallida* in favor of *Treponema pallidum*. Even if it were established beyond further question that the organism of syphilis is not strictly a spirochete, it is still true that the name *Spirochaeta pallida* has become established through authoritative and almost universal usage. And such usage is what makes language.

It would be desirable to have every name scientifically accurate, but objects are discovered and must be given names before their exact scientific position can be known. It thus results that in every department of knowledge there are many names which represent inconsistencies; sometimes glaring inconsistencies. These names, however, become so fixed in usage that to change them is impossible. To attempt to do away with them leads to confusion, and usually gets nowhere toward making the desired change. Even if *Spirochaeta pallida* were not an exactly correct name for the organism of syphilis—which is by no means proved—it would still be true that the argument would be strong in favor of the use of the name. Men the world over know the name *Spirochaeta pallida* for the organism of syphilis. The intelligent public knows this name for the organism. On the other hand, I venture that not one in ten of the medical profession throughout the world knows the other name for the organism, or if he knows it, is uncertain whether it is Treponema or Treponoma. The practical grounds for advocating the use of *Spirochaeta pallida* are, therefore, very strong. They are particularly strong when it is remembered that the reasons for the use of Treponema rest only on biologic contentions which are not conclusive.

Professor Novy of Ann Arbor, Mich., in a personal communication to me on this subject, summarizes the situation very well in the following sentence:

> The term Spirochaeta has come into such general use that it hardly seems worth while to make a change unless the difference is absolutely conclusive.

If the best usage means anything, *Spirochaeta pallida* is an acceptable term for the organism of syphilis, and its almost universal use shows beyond question that the name has come to stay. It is impossible in the face of such a situation to hope to change usage to the term *Treponema pallidum*, and in the interest of unanimity there should be general acceptance of the term *Spirochaeta pallida*.

7 West Madison Street.

Infant Diarrhea and Convulsions Due to Bacteria in Breast Milk

The great prevalence of diarrhea among small children and the frequency of deaths from convulsions and meningitis, in Pasig, Philippine Islands, are attributed by Surg. J. D. Long, United States Public Health Service (*Public Health Reports*, Oct. 27, 1916, p. 2966), to the presence of pus-producing organisms in the breast milk of the mother. After thorough disinfection of the breasts, eleven specimens of mother's milk were collected by the use of sterile breast pumps and were immediately plated, with the following results: In two cases, 120,000 bacteria per cubic centimeter were found; in one case, 70,000; in two cases, 25,000; in one case, 20,000, and in five cases, 10,000. The organisms commonly found were of the staphylococcus group; colon bacilli were occasionally present. Blood cultures invariably gave negative results, excluding bacteremia as the cause of bacteria in the breast milk. Investigations are still under way to determine the cause of the condition and to find a method for preventing it.

Medicolegal

A Contract for Services not Required to be in Writing—Proof of Account

(*Johnson vs. Jones* (*Ind.*), *112 N. E. R. 830*)

The Appellate Court of Indiana, Division No. 2, says that the first paragraph of the complaint was brought on an account for services rendered by the plaintiff as a licensed physician, and the second paragraph was on an account assigned to him which also covered services as a physician rendered by the assignor, a Dr. Stookey. The defendant contended that the agreements made with the two physicians fell within the statute of frauds requiring undertakings to answer for the debts of others to be evidenced in writing, but the court does not think so, because, instead of the defendant appearing as a mere guarantor of bills contracted by her son, it appeared that she as an original promisor contracted to pay the claims both of the physician and the pathologist who rendered services requested by her for her son, when in the state of California, and that credit was given to her and not to her son. Such being the nature of the agreements, they were not void under the statute of frauds, though not in writing. The evidence fully supported the first paragraph of the complaint. There was no dispute about the services having been rendered by the plaintiff, that he charged the defendant therefor the sum of $300, that such services were worth that sum, that he was paid on his individual account the sum of $125, leaving a balance of $175. Moreover, the account sued on in the first paragraph of the complaint became liquidated when the same was presented for payment and accepted and a partial payment made, and the trial court properly allowed interest at the rate allowable in Indiana as a part of the judgment. The judgment rendered in favor of the plaintiff is affirmed as to the amount rendered on the first paragraph of the complaint, but on condition that within thirty days he enter a remittitur of the amount rendered on the second paragraph, as the court is of the opinion that there was no proof whatever to disclose the value of the services rendered by Dr. Stookey. In the absence of an express agreement, one who brings to such a service as was rendered by him due care and skill can recover the reasonable and customary price therefor, but such reasonable and customary fee must be shown by competent evidence. Proof of the price charged by the complaint, without any proof of the value of the service performed, is not sufficient, and does not meet the test. The plaintiff took the position that as each paragraph of the complaint contained a statement of the account sued on, and each paragraph was duly verified, and as the defendant did not introduce evidence to refute the averments of the complaint, that was sufficient, under Section 392 of Burns' Annotated Statutes of 1914. The difficulty with this position was that the statute referred to is applicable to defaulted cases, while in this case there was an appearance and an answer in general denial filed, which cast the burden on the plaintiff who claimed the amount sued on in the second paragraph of the complaint to prove the value of the services rendered, as was done to support the first paragraph.

Failure to Take Blood Test Before Operation—Right to Compensation

(*Harvey vs. Richardson* (*Wash.*), *137 Pac. R. 674*)

The Supreme Court of Washington reverses a judgment that was rendered for the defendant, as administrator, in this action by a surgeon to recover for professional services. The court says that the patient was suffering from an exophthalmic goiter, and on consulting the plaintiff was advised by him to go to Rochester, Minn., for surgical treatment. Not desiring to do so, the patient and her husband requested the plaintiff to perform the necessary operation. The patient was thereupon sent to the hospital, and in a day or two the operation was undertaken. It progressed until about half of the goiter had been removed, when the patient died. The defendant, over the plaintiff's objection, introduced evidence that no blood test was taken prior to the operation,

and that such a test was usual to determine the oxygen-carrying power of the blood, which, if below a given point, renders an operation of this character extrahazardous. The lower court was of the opinion that this testimony raised a question of negligence, and submitted instructions to the jury on that theory. The supreme court thinks this was error. There was no evidence that the blood of the patient was below the required oxygen test, nor was there any attempt to show that the failure to take the blood test contributed to any extent to the death of the patient. Before a charge of negligence can be sustained against a physician or surgeon, there must be some evidence that the failure to use proper skill, either in the thing done or in the thing left undone, was the proximate cause of injury to the patient. In other words, there must be some connection between the act and the result complained of. There was none in this case. The undertaking of a physician or surgeon is not to cure his patient, nor does he insure that his treatment will be successful. Neither does the failure to perfect a cure evidence want of care or skill. It was known before the patient went on the operating table that she was in a dangerous condition, and that the operation would be extrahazardous. The plaintiff could not be deprived of the reasonable value of his services because the patient died during the operation, unless there was some evidence that death was the result of some lack of skill on his part. There was no such evidence, nor any attempt to so prove. The defendant contented himself with showing that no blood test was made, leaving the jury to infer that in some way this contributed to the patient's death. Neither was there evidence that such test had ever been made in operations of this character in that vicinity, although it appeared in the record that a number of these operations had been performed in this same hospital. Again, the defendant urged in support of the judgment in his favor a remark of the plaintiff to the patient, after he had urged her to go to Mayo Brothers and she had refused, "Well, if you are willing to take a chance with me, I will take a chance with you"—contending that by this language it was understood the patient took the chance of death, and the plaintiff took the chance of losing the value of his services unless the operation was successful. The court sees no connection between the remark and the inference. It was next urged that the plaintiff based his right of action on a contract to remove a goiter, and not having removed it, his right of action failed. There was no evidence of such a contract, and the plaintiff's right of action, under the evidence, could not be so limited. Because of the error in submitting the case to the jury, the judgment is reversed, and the cause remanded for a new trial.

Physicians as Witnesses to Wills and Competency of Patients

(Points et al. vs. Nier et al. (Wash.), 157 Pac. R. 44)

The Supreme Court of Washington affirms a judgment sustaining a will, although it was contended that the testimony of the witnesses to the will should have been excluded on the ground that their testimony was incompetent and privileged because they were the physicians who attended the testatrix during her last illness. These witnesses testified not only to the execution of the will by the testatrix, but also to her sanity and her mental competence to execute a will. The contestants quoted the provision of the Washington statute that "a regular physician or surgeon shall not, without the consent of his patient, be examined in a civil action as to any information acquired in attending such patient, which was necessary to enable him to prescribe or act for the patient," and cases were cited to the effect that, under such statutes as this, it is held that the privilege is personal with the patient, and that it applies in testamentary cases and cannot be waived by the heirs and personal representatives. But the court says that it does not agree with the reasoning or the holding of the cases cited. The court's opinion is that if the testatrix requested these physicians to attest her will as witnesses or knowingly assented thereto, she waived the privilege, and they were competent to testify as to the execution of the will and the competence of the maker.

Society Proceedings

COMING MEETINGS

American Academy of Ophthal. and Oto-Laryn., Memphis, Dec. 11-13.
American Association of Anatomists, New York, Dec. 27-29.
Medical Association of the Isthmian Canal Zone, Ancon, Dec. 16.
Society of American Bacteriologists, New Haven, Conn., Dec. 26.
South. Surg. and Gynec. Assn., White Sulphur Spgs., W. Va., Dec. 11-13.
Western Surgical Association, St. Paul, Dec. 15-16.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION

Forty-Second Annual Meeting, held at Indianapolis, Oct. 10-12, 1916

The President, DR. WILLARD J. STONE, Toledo, Ohio, in the Chair

Protozoic Enterocolitis in the Middle West

DR. FRANK SMITHIES, Chicago: Among 100 stool analyses, protozoa were observed in ninety-three instances. The geographic diversity of the patients was: Illinois, 29; Iowa, 16; Wisconsin, 13; Nebraska, 8; Michigan, 7; Minnesota, 6; Indiana, 4; South Dakota, 2; Arkansas, 2; Ohio, 2; Texas, 2; Kentucky, 1, and North California, 1. Sixty-six were large eaters of fresh garden truck, unwashed fresh raw fruits or bananas. Diarrhea was complained of in eighty-six cases. Sixty-seven per cent. of the patients had been affected from one to five years; eight patients had been ill less than one year, while a like number had been ailing for more than ten years, the longest period being forty-three years. Constipation occurred in four cases. Dyspepsia was prominent in seventy-five cases. Abdominal pain or discomfort was a complaint in eighty-nine cases. Loss of weight was noted in seventy-five cases. Loss of strength is often striking, even though the weight may have decreased comparatively little. Anemia is usually evident, although in some cases it may not be pronounced. A peculiar malaise or melancholia is frequently observed. On physical examination these patients generally appear both starved and toxic. The stools are commonly of a greenish brown or yellow color and of a purée-like consistency, intermixed with flakes of mucus and food bits. They may be blood streaked or foamy. The reaction is usually definitely alkaline. There were forty cases with gastric achylia; thirty-three cases with subnormal hydrochloric acidity, and twenty cases with normal or increased gastric hydrochloric acid. In one instance of most pronounced acute infection with cercomonads and trichomonads, the free hydrochloric acid was 86. The gastric motility was normal in eighty-three cases. In ten cases there was mild stagnation. In sixteen instances albuminuria was noted. Our study of specimens of gallbladders and appendixes removed at laparotomy indicates that in these parts of the intestine, cysts of protozoa may lurk for years. Reinfection of the bowel is thus possible.

The Secretion of the Mammary Glands; Its Relationship to Albuminuria and Eclampsia

DR. W. E. GARY, Louisville, Ky.: In eclampsia, by inflating the glands to start secretion, emptying the uterus, eliminating by purgation, supporting the kidney elimination by proctoclysis, and controlling blood pressure with veratrum viride, the patient can be kept alive until full elimination can be secured through the glands.

Ectopic Pregnancy; Diagnosis and Treatment

DR. RICHARD R. SMITH, Grand Rapids, Mich.: The treatment of ectopic pregnancy is the removal of the offending tube with its contents and extravasated blood. This should be done as soon as suitable arrangements can be completed, but it is unnecessary so to hasten matters as to interfere with the operation being properly performed. If after a few hours the patient shows no improvement, I usually operate; if she does improve, I usually wait six, twelve, twenty-four or even forty-eight hours. In young women or in those who have had few children, or desire more, the tube, if patulous, should invariably be saved. In older women and those who

have already borne children and feel that they are through with childbearing, it is wiser to remove it. Unusually the less we do in the abdomen of a woman with an ectopic pregnancy the better. The removal of most of the unattached blood clots is necessary, but the removal of partially organized and adherent blood should not be attempted. No drainage should be instituted unless, as rarely happens, we are dealing with a case of infection. The closing and suturing of the abdominal wall should be well done, since postoperative distention is perhaps more common than following an ordinary laparotomy.

Is the Genealogy of the Gonococcus and Meningococcus the Same?

DR. CHARLES E. BARNETT, Fort Wayne, Ind.: It has been my experience to have acute gonorrhea cases react to meningococcus vaccine. The laboratory findings for both the meningococcus and gonococcus are practically the same. Meningococcus infection of the genital tract is rare, or else only the most virulent infections are recognized. The meningococcus in the genital tract simulates the gonococcus in its action, precisely, with the exception of showing a marked increase in virulence and persistence.

Surgical Management of Acute Perforation, Complicating Intra-Abdominal Infections

DR. W. D. HAINES, Cincinnati: The length of time which has elapsed since perforation took place, the surroundings, the actual findings at operation and the experience of the operator are important factors for consideration in planning the operation. Many of these patients are in such a desperate condition when they are brought to the operating room that locating and closing the perforation and providing drainage as quickly and with as little disturbance to surrounding structures as is consistent with making a water-tight joint and placing the drainage will best subserve the interests of the patient. A bad surgical risk before perforation takes place is not improved by the incident of perforation. A live patient with the perforation closed and peritoneal cavity drained, although the operation is incomplete, with a badly diseased condition in the abdomen which may be removed later if occasion demands, is preferable to a dead patient after a technically perfect operation.

Blood Chemical Analyses in Reference to Diagnosis and Treatment

DR. R. B. H. GRADWOHL, St. Louis: Chronic kidney degeneration is accompanied by the accumulation of all three constituents—uric acid, urea nitrogen and creatinin. The normal finding in respect to uric acid is from 1 to 2.5 mg. per hundred c.c. of blood; of urea nitrogen, from 12 to 15 mg., and of creatinin, from 1 to 2.5 mg. An undue accumulation of all three constituents is a remarkably valuable method of estimation of true kidney function. Values for urea nitrogen in conditions of uremic nephritis have been known to reach as high as 300 mg. per hundred c.c. of blood; of uric acid as high as 15 mg., and of creatinin as much as 30 mg. These high values indicate grave uremia. The presence of over 5 mg. of creatinin in 100 c.c. of blood indicates a fatal prognosis. The combination of nephritis with diabetes mellitus too often is disregarded. If blood chemical analyses were made more often in grave diabetic states, it would be shown that in some of these so-called cases of diabetic coma the patients are really in a state of extreme uremia due to this complicating nephritis. Many patients with diabetes mellitus have died of uremia, and were considered to have diabetic coma and were treated for that condition. Another field of usefulness of these tests which is now opening up is the preoperative survey of surgical cases, the estimation of operation risks, and the manner in which kidneys are functionating after operative interference. This should prove of great help to the operating surgeon.

Operative Treatment of Tuberculous Spine

DR. HENRY B. THOMAS, Chicago: The Hibbs technic copies Nature in her preparation for the fixation of the vertebrae. It requires operation only in the posterior region of the spine itself, making unnecessary the removal of bone from the leg. It immediately reduces the kyphotic deformity by the length of the spinous process, usually from one-half to 1 inch. Ankylosing the articular processes greatly aids in the fixation. The most important suggestion regarding the after-treatment concerns the mechanical fixation after the patient is kept in bed for six weeks; either a cast or a brace is worn for from six to ten months, with constant observations of the position and progress.

DISCUSSION

DR. JOHN RIDLON, Chicago: In these operations of Hibbs and Albee for the treatment of tuberculosis of the spine, I still use braces. Not all these cases are perfect restorations, despite Albee. Some of the patients die as the result of the operation; some of the grafts come out; some of the grafts break, and a great many of them are put into spines already ankylosed through the course of time. In selected cases these operations have a place, and the Hibbs operation is a little more appealing to one's judgment of what is right than the Albee. I have seen many of these operations, I have assisted in some, I have done none myself, and I never shall.

DR. W. B. OWEN, Louisville, Ky.: We make a great mistake in using the word "cured" in these cases. The first reports were really almost too good to be true. I think they have proved not to be true; that is, the results have not lasted. The Hibbs operation seems to be very simple, and in some respects a more feasible procedure, although there would be one objection, and that was first claimed as a point in its favor—the flexibility of the spine. If we allow motion in the spine, the cure is not so apt to take place.

Tumors of the Breast

DR. J. GARLAND SHERRILL, Louisville, Ky.: The public should be brought to understand the value of early and radical removal of all suspicious tumors of the breast. The physician should make a most careful examination of such cases, and if in doubt he should ask for consultation. Radical removal of the breast with the axillary contents is the best method of treatment, followed or preceded by the employment of the Roentgen ray. Pathologic examination should be made at the time of operation, if the diagnosis is doubtful. Radical removal should be done if the case is certainly malignant, without preliminary examination. This procedure should be urged with all possible force. Even in cases too far advanced for a cure, much can be added to the patient's comfort by the employment of radical operation as a palliative measure.

Tumors of the Kidney, Associated with Stone

DRS. H. H. MARTIN and H. O. MERTZ, LaPorte, Ind.: Epithelial tumors of the kidney are most frequently associated with renal calculi. Cystic tumors, associated with renal stone, are next in frequency. The coexistence of renal calculi and mesotheliomatous and sarcomatous tumors is rare. The stone in the majority of cases, 56 per cent. in epithelial tumors of the parenchyma and 62 per cent. in epithelial tumors of the pelvis and ureter, is the primary lesion. In cystic tumors of the kidney, in the true polycystic degeneration, the calculus is invariably secondary; while in the case of a large cyst it not infrequently is one of the etiologic factors. In mesotheliomatous tumors the stone is always secondary, while of the sarcomatous neoplasms we have collected two cases with an uncertain relationship existing, while in a third case the stone was secondary. The coexistence of stone and neoplasm in the kidney of a child is extremely rare. We have found no such association.

High Frequency Electricity in Treatment of Uterine Fibroids when Operation is Refused, and in Prostatic Enlargements

DR. NATHAN ROSEWATER, Cleveland: High frequency currents applied through glass vacuum electrodes on the mucosa of the vagina and rectum are not painful, irritating or seemingly harmful in moderate doses over long periods of time. They do not cause sterility, but on the contrary several cases of pregnancy occurred after treatment in married women who had been sterile over periods of from eight to eleven

years. In cases of acute specific prostatitis, immediate cessation of painful symptoms and rapid cure without recurrence occurs. In cases of enlarged prostate of the senile, without inflammatory conditions, a slower but equally positive improvement was observed. In cases of even extremely large uterine fibroids, an extra prolonged treatment weekly, or even once a month, was followed by decided reduction in size and in restitution to normal function. It is uncertain how many treatments should be given, over what period of time they should be repeated; but most of those who stopped treatment subsequently submitted to operation; none died subsequently of malignancy. High frequency electricity applied in the rectum and vagina for tuberculous peritonitis is not incompatible with a successful recovery after laparotomy, laparotomy being reserved for those cases in which no improvement is shown without it.

Value of the Cystoscope in the Differential Diagnosis of Abdominal Lesions

DR. COURTNEY W. SHROPSHIRE, Birmingham, Ala.: The best results in the differential diagnosis of abdominal lesions are obtained by the combined efforts of the surgeon, cystoscopist, roentgenologist and laboratory technician. It is impossible in a great many cases to say without the aid of the cystoscope whether an existing lesion is within the abdominal cavity or represents some pathologic condition of the urinary tract. Therefore a cystoscopic and roentgenographic examination should be made in every case which borders on uncertainty. Too much reliance should not be placed on pain or even tenderness to pressure in vague abdominal lesions. Lesions of the left kidney often produce symptoms referable to the intestinal tract. Renal colic is caused by an overdistention of the renal pelvis; and an obstruction in the lower third will often cause symptoms referable to the kidney region.

Treatment of Fractures of the Long Bones

DR. F. P. CORRIGAN, Cleveland: Reduction under anesthesia should be the procedure unless strongly contraindicated by age or infirmity. Immobilization should be done, "immobilization" being used only in the sense of maintenance of reduction. Complete immobilization with splints is not possible, nor is it necessary; if reduction is maintained, slight motion between the fragments does no harm, and it is even held that it is in a sense physiologic and an important factor in stimulating osteogenesis. The principles of extension and early reduction are the ones on which I wish to lay stress. In order to facilitate the early application of extending force to the limb, I have devised an extension bandage or sleeve woven in such a fashion that when pulled on from below it becomes smaller and grips the limb. This extension bandage does away with the disagreeable and annoying features of adhesive plaster. Moreover, it is easily and quickly applied, easily removed, and can be sterilized.

Roentgen Studies in Bone Pathology, With Special Reference to Spontaneous Fractures

DR. LEON T. LE WALD, New York: In my series of pathologic fractures, bone cyst merits most careful consideration. Without careful Roentgen examination, an ordinary fracture will be diagnosed, and inadequate treatment instituted. Sarcoma is often thought of, and either no operation or a very extensive one might be the method of treatment. In the past, without doubt, many cases of bone cysts have been dealt with too radically, even by amputation of an extremity under the supposition that one was dealing with a sarcoma. Spontaneous fracture may give the first clue to a primary or secondary new growth in bone. Roentgen examination of the part involved may immediately establish the diagnosis. Clinical examination based on the Roentgen findings may then locate a primary growth in some remote part of the body. Syphilis of the bones may not be suspected until a spontaneous fracture followed by Roentgen examination and a Wassermann test establish the diagnosis and point the way to a cure, not only of the bone condition, but also of other unsuspected syphilitic lesions of internal organs.

MINNESOTA STATE MEDICAL ASSOCIATION

Annual Meeting, held at Minneapolis, Oct. 12 and 13, 1916

The President, DR. J. WARREN LITTLE, in the Chair

Histopathology of the Anatomic Nervous System in Goiters

DR. LOUIS B. WILSON, Rochester: The findings in about thirty cases examined suggest that the primary lesion of exophthalmic goiter may be a bacterial infection of the cervical sympathetic ganglia.

Occurrence of Urobilinogen and Urobilin in the Urine of Pregnant and Nonpregnant Women

DR. ELIZABETH BARNARD, Minneapolis: Urobilin was demonstrated in the urine of 71.9 per cent. of pregnant women, and in a small proportion of the nonpregnant. Indican was present in 48.6 per cent. of the pregnant and 54.5 per cent. of the nonpregnant urobilinuria patients. In the total number of tests, however, the proportion is less, being 26.4 per cent. in the pregnant and 46.7 per cent. in the nonpregnant. A parallelism between its occurrence and the presence of urobilin in the urine has not been established. The qualitative estimation of urobilin in the urine alone is of little or no diagnostic value.

DISCUSSION

DR. E. L. GARDNER, Minneapolis: There is no doubt that hemoglobin is one of the sources for the bile pigments, but the relative proportion between the hemoglobin and the food or other substances in the body which might possibly be a source of bile pigment has not been determined. What is the value clinically in estimating the urobilin and urobilinogen in the urine? Very little. In studying hemoglobin metabolism, we must study the pigments at the various locations in the body.

DR. F. L. ADAIR, Minneapolis: The condition of the liver in the so-called toxemias of pregnancy is fully as important, if not more so, than the condition of the kidneys; hence the importance of finding a test. The presence of these pigments in such a large proportion of the pregnancy cases, and in such a small proportion of those individuals who are not pregnant is striking. This is rather difficult to explain, but it seems an unwarranted conclusion to draw that the presence of this substance in the urine necessarily indicates any serious interference with kidney function. There are many factors which enter into the production of bile, as the diet, increased metabolism in pregnancy, and the blood changes which go along with pregnancy in addition to actual disease of the liver.

DR. J. W. GEORGE, Minneapolis: Certain women are more subject to toxemias during pregnancy than others. It would be interesting to make a series of tests on the patient before she becomes pregnant, and then during pregnancy.

DR. L. G. ROWNTREE, Minneapolis: I have made a great many urobilin and urobilinogen studies from the standpoint of liver function. The variation of this substance from day to day is great, and we get it from many different conditions at different times. I do not believe that the presence of urobilin or urobilinogen can be taken as evidence of decreased liver function unless one has excluded the possibility of increased blood destruction, and that can be done only through a study of their contents in the stool. The factor of safety is so great in the liver that for practical purposes it becomes an extremely difficult proposition to get at that question of liver function in either health or disease.

Syphilis in the State of Minnesota

DR. H. G. IRVINE, Minneapolis: Syphilis is one of the greatest public health problems of the day. Laws should be drawn placing syphilis in the group of infectious and contagious diseases. Regulations and control should rest with the board of health, and a sufficient appropriation should be maintained to furnish adequate laboratory facilities and free treatment, if necessary. Beds should be furnished in all medical institutions depending on public funds for maintenance, where patients with infectious lesions might be detained until the lesions are cleared up, and where treatment should not only be furnished but also be obligatory.

A campaign of education should be carried on by the board of health and various medical societies.

DISCUSSION

DR. H. M. BRACKEN, St. Paul: In dealing with syphilis, or venereal diseases, we do not have the primaries and secondaries in the sense in which we speak of other diseases, but the voluntary, the criminal and the accidental. The voluntary cases are those in which the people deliberately take their chances. The criminal cases are those which result from marriage; when people know they should not marry, they are liable to convey infection to the innocent. The percentage of the innocent is small. The percentage of the criminally infected is comparatively large, and the percentage of the voluntarily infected is the largest of the three. The legislature has delegated to the state board of health the right to make regulations to govern these things, and the board can make regulations looking to the control of venereal diseases if it is desired; but there is no use in making regulations unless we can enforce them.

DR. L. G. ROWNTREE, Minneapolis: The greatest advances in dealing with the problem of syphilis are to be made through education both of the profession and of the laity. I do not believe that ordinances will control syphilis. The board of health should deal with the problem.

DR. C. F. DIGHT, Minneapolis: Syphilis should be made reportable to the state board of health, and while we have no state legislation which requires it, I believe it is quite possible to have an ordinance passed by the city council requiring syphilis to be reported to the state board of health.

DR. JOHN C. BOEHM, St. Cloud: It has been suggested that the state board of health should take a hand in controlling syphilis; that the municipality should pass an ordinance; that the state perhaps should pass laws. All of this has some bearing; but when we remember the usual way that syphilis is contracted—I speak of active syphilis, not hereditary—we find a stumbling block right there. How many would come to us and have us treat them if they knew we would report them? Just answer that for yourself. The only way to control syphilis is by education in schools and in churches. The state should appropriate a certain sum of money so that those who cannot afford to pay for the necessary medicine should have it available.

Technic of Nerve Repair in Traumatic Injuries

DR. J. F. CORBETT, Minneapolis: Anastomosis of normal nerves often gives good results, more than 40 per cent. The failures have been due to: 1. Failure to resect enough intraneural connective tissue in the proximal segment. 2. Failure to control intrancural hemorrhage. 3. Too deeply placed stitches when the sheath is sewed. 4. The use of veins or fascia in areas of preexisting scar tissue. In areas of scar tissue, investment with fatty fascia and complete neurolysis is indicated with or without transplantation to normal muscle. 5. Infection. 6. Defects of over 4 inches should not be repaired by tubulization, but should be the subjects of nerve grafting.

Preservation of the Great Omentum in Hernia and in the Resection of the Colon

DR. CHARLES H. MAYO, Rochester: The omentum is an organ of extensive absorbent capacity, probably absorbing more through the blood stream than through the lymph channels. The omentum is always ready with its protective army; in time of need there is quick exudate of lymph with the formation of adhesions. Adhesions of omentum to cancer areas rarely occur unless there is secondary infection from abscess, perforation or impending perforation. Methods of preserving the omentum in colectomy: 1. Lift the omentum and separate it from its colonic attachment with a sharp knife. 2. Make a longitudinal incision through the peritoneum and muscle of the transverse colon only. The mucosa readily peels out of its muscular bed by gauze dissection, and the right colon and descending colon may be removed in toto. Right colectomy removes the greatest absorbent surface and preserves the omentum; it is equally effective in the majority of cases of surgical stasis.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Insanity, Baltimore

October, LXXIII, No. 2

1 What State Hospital Can Do in Mental Hygiene. W. L. Russell, White Plains, N. Y.—p. 157.
2 Art in Insane. C. B. Burr, Flint, Mich.—p. 165.
3 *Huntington's Chorea in Relation to Heredity and Eugenics. C. B. Davenport, Washington, D. C., and E. B. Muncey, Cold Spring Harbor, N. Y.—p. 195.
4 Environmental Origin of Mental Disease in Certain Families. L. V. Briggs, Boston.—p. 223.
5 *Duration of Paresis Following Treatment. W. R. Dunton, Jr., and G. F. Sargent, Towson, Md.—p. 241.
6 Treatment of Cerebrospinal Syphilis; Report of Cases. L. W. Grove, Tuscaloosa, Ala.—p. 253.
7 *Syphilis in The East Louisiana Hospital for Insane. C. S. Holbrook, Jackson, La.—p. 261.
8 Psychograph of Rossolimo. B. Parker, Chicago.—p. 273.
9 Recollections of Psychiatrist. J. M. Keniston, Middletown, Conn.—p. 295.

3. Huntington's Chorea, Heredity and Eugenics.—A study by Davenport and Muncey of four family complexes in eastern Long Island, southwestern Connecticut, south central Connecticut and eastern Massachusetts which show nearly 1,000 cases of Huntington's chorea, yields the remarkable result that practically all can be traced back to some half dozen persons, including three (probable) brothers who migrated to America during the seventeenth century. But already, numerous "biotypes" having specific and differential hereditary behavior, have appeared. Thus there is a biotype in which the tremors are absent, but mental deterioration present; a biotype in which the tremors are not accompanied by mental deterioration; a biotype in which the chorea does not progress; and a biotype in which the onset of the choreic movements is in early life. In general, the symptomatology of chronic chorea is dissimilar in different strains of families. The age of onset, the degree of muscular involvement, the extent of mental deterioration all show family differences and enable one to recognize various species, or biotypes, of the disease. These biotypes are less striking than they would be were it not for the extensive hybridization that is taking place between biotypes in random human matings.

Among the 3,000 odd relatives of the 962 choreics studied, many nervous traits are recorded. Thus, epilepsy is recorded 39 times, infantile convulsions 19 times, meningeal inflammations and brain fever 51 times, hydrocephaly 41 times, feeblemindedness 72 times, Sydenham's chorea 11 times, and tics 9 times, mostly in one small family. This incidence, which would seem high for an unselected population, suggests that chorea occurs in families characterized by a general liability to nervous and mental troubles. Though it can be shown that the 962 cases of chorea originated from six or seven ancestors and that the tendency has been handed down almost without a break through the generations, and that for generations there have been individuals who recognized the hereditary nature of the disease and were influenced in marriage accordingly, there is no clear evidence that persons belonging to the choreic lines voluntarily abstain to any marked degree from marriage, or are selected against in it.

5. Duration of Paresis Following Treatment.—Dunton and Sargent claim that the duration of paresis following treatment by the Swift-Ellis method is about half that of cases treated by the older methods.

7. Syphilis in Insane.—Holbrook urges that the serologic laboratory should be an important department of every hospital for the insane, and a routine Wassermann should be made of every patient received. The spinal fluid should be studied in all suspicious cases. Treatment should be given the syphilitic patients and the intraspinal administration of salvarsan and mercury should be employed in cases of syphilis of the brain and spinal cord. General surveys should be made of hospitals, orphanages, penitentiaries and wherever large groups of persons are collected. The Tschernogubow reaction should be more extensively used for it is a very valuable modification of the original Wassermann technic.

American Journal of Physiology, Baltimore

November, XLI, No. 5

10 Studies on Growth of Man. Growth of British Infants During First Year Succeeding Birth. T. B. Robertson, San Francisco. —p. 535.
11 Id. Variability of Weight and Stature of Schoolchildren and Its Relationship to Their Physical Welfare. T. B. Robertson, San Francisco.—p. 547.
12 Physiology of Stomach. Hunger Mechanism of Pigeon and Its Relation to Central Nervous System. F. T. Rogers, Chicago. —p. 555.
13 Some Unusual Experimental Lesions of Cerebellum and Medulla Oblongata. J. G. Wilson and F. H. Pike, New York.—p. 471.
14 Responses of Single Melanophores to Electrical Stimulation. R. A. Spaeth, New Haven, Conn.—p. 577.
15 Device for Recording Physiologic Responses of Single Melanophores. R. A. Spaeth, New Haven, Conn.—p. 597.

American Journal of Medical Sciences, Philadelphia

November CLII, No. 5

16 *Susceptibility of Man to Foreign Proteins. W. T. Longcope, New York.—p. 625.
17 Symptoms and Physical Signs Resulting from Wounds of Chest. C. P. Howard, Iowa City, Iowa.—p. 650.
18 *Specific and Other Forms of Spondylitis. B. Sachs, New York. —p. 661.
19 *Neurologic Condition Associated with Polyarthritis and Spondylitis. P. W. Nathan, New York.—p. 667.
20 *Study of Involvement of Bones and Joints in Early Syphilis. U. J. Wile and F. E. Senear, Ann Arbor, Mich.—p. 689.
21 *Case of Multiple Myelomas; Its Nature and Origin. B. M. Vance, New York.—p. 693.
22 Massive Hemorrhages from Stomach without Demonstrable Ulcer; Report of Four Cases. A. V. Moschcowitz, New York.—p. 714.
23 Chronic Intestinal Stasis; Report of Cases. G. R. Satterlee. New York.—p. 727.
24 Family with Myotonia, Probably Intermittent Form of Thomsen's Disease. N. Toomey, Philadelphia.—p. 738.

16. **Susceptibility of Man to Foreign Proteins.**—The injection of foreign proteins in man, Longcope says, brings about the same condition of hypersensitiveness toward subsequent injections that it does in animals. Certain individuals may show spontaneous hypersusceptibility to one of several foreign proteins. These people differ from the artificially sensitized, in that their susceptibility is very great, is shown toward several different proteins, and has a tendency to occur in families. This state is associated with and directly responsible for some well defined pathologic conditions.

18. **Specific and Other Forms of Spondylitis.**—So far as the treatment of these cases is concerned, Sachs says, that the specific cases should be treated most vigorously by intravenous injections of salvarsan, combined with intramuscular injections of mercury or by inunctions. The nonspecific cases must be treated either by simple rest, by intense heat, or by such measures as it is entirely within the province of the orthopedic surgeon to suggest.

19. **Neurologic Symptoms in Polyarthritis and Spondylitis.**—Nathan's experience has led him to believe that, aside from the atrophy and hypertonia which can, with more or less propriety, be attributed to reflex action, neurologic symptoms are frequent accompaniments of polyarthritic conditions; that these symptoms are definite and that they bear a definite relation to the underlying morbid process. These neurologic phenomena, which for the most part consist of muscular atrophy with spasticity, vasomotor irritation, and disturbed sensation, may be associated with either acute or chronic polyarthritis.

20. **Bones and Joints in Early Syphilis.**—Wile and Senear have studied during the past two years, with particular reference to early bone and joint involvement, 165 cases of syphilis in the primary and secondary periods. Of the 60 cases in which bone or joint involvement was found 36 patients showed some definite constitutional disturbance due to their syphilis. In 31 of the 60 cases careful neurologic examination was made. Of these, 14 gave positive findings in the spinal fluid, together with associated neurologic findings, while 17 were found to be uninvolved. In about 30 per cent. of those cases in which the bones and joints were involved, definite splenic enlargement could be demonstrated. Twenty-seven cases showed involvement of the bones only; in 21 the joints were affected independently; in the remaining 12 cases the bones and joints were involved together. In all but one case in which the bones were involved, more or less pain was present. Objectively, periostitis was the most frequent clinical finding. The tibia was thus involved in 8 patients examined and the sternum was next in frequency, the skull and ribs next. The clavicle was the only site in which the periosteal node was found to be absolutely painless. Arthralgia was the most common finding referable to the articulations. It was present in 17 of 21 cases studied. The pain, as in the cases of the bones, was for the most part nocturnal, and was also relieved by exercise. In the order of frequency, the ankles, the metatarsophalangeal joints and the elbows were affected, and in one case the elbow and shoulder joint of the same side were affected. Pressure on such joints was always followed by sharp pain.

21. **Multiple Myelomas.**—In Vance's case there was found at necropsy a multiple primary neoplasm of the bone marrow, extensively infiltrating the ribs, cervical vertebrae, clavicles, sternum and femur. The tumor tissue caused destruction of the bone, wearing away the cortex to a thin layer and entirely replacing the cancellous bone. The neoplasm was confined to the osseous system, the viscera were not involved nor were the surrounding soft tissues infiltrated, except in the neck. The tumor was yellowish white in color, soft in consistency and homogeneous in appearance, resembling a rapidly growing round-cell sarcoma. The masses in the sternum and the head of the right femur showed extensive hemorrhages, which gave the neoplasm a dark red appearance like clotted blood. On microscopic examination the tumor cells were found packed together in a stroma, consisting of very fine cellular connective tissue, delicate blood vessels, a fine eosinophilic ground substance, and red blood cells whenever the section was taken from a hemorrhagic area.

Boston Medical and Surgical Journal

November 9, CLXXV, No. 19

25 Treatment of Weak Labor Pains. S. Rushmore, Boston.—p. 659.
26 *Symptoms and Treatment of Congenital Transduodenal Bands; Report of Eleven Cases. J. Homans, Boston.—p. 665.
27 *Indications for Wet Packs in Psychiatric Cases. H. M. Adler, Boston.—p. 673.
28 *Syphilis of Lungs; Report of Eleven Cases. N. K. Wood, Boston. —p. 677.
29 Control of Scarlet Fever. D. M. Lewis, New Haven, Conn.—p. 682.

26. **Treatment of Congenital Transduodenal Bands.**—Eleven cases are reported by Homans in which definite bands passing from the gallbladder and liver across the duodenum have been found, and in which gastric or duodenal ulcers or gallbladder disease have been held to be absent. The average duration of symptoms was eight to nine years. Two patients had suffered with gastric disturbances for twenty years and one for only four weeks. In many instances the complaint is similar to the familiar dull, distressing ache and gnawing discomfort of duodenal ulcer, but the patients suffering from transduodenal bands have a greater variety of symptoms. In this respect they present more the picture of gastric ulcer, and again the irregular time of appearance of the pain or discomfort is more like that of gallstones. Five patients had some intermissions in the steady development of their symptoms. In six food relief was noticeable and when present was of fairly long duration. That is to say, it more resembled that of pyloric or duodenal ulcer than that of ulcer of the lesser curvature. Vomiting was present six times. No history of hematemesis was obtained; blood was never found in the stomach washings, and in only one case was there a story of bloody or tarry stools. The familiar measurement of the free hydrochloric and total acids in the gastric contents proved to be of no diagnostic value.

The Roentgen findings are much more like those of duodenal than gastric ulcer. Studies in gastric and duodenal motility and in the position and outline of the stomach and duodenum showed abnormalities in all instances of well-developed transduodenal bands in which this examination was made. Cholecystitis, duodenal and gastric ulcers are not likely to be mistaken for bands, but bands may simulate the appearances of these other lesions, especially duodenal ulcer and cholecystitis. The general character of the patient's complaint tends to resemble that of ulcer or gallbladder

disease, but gives the impression of a reflex symptom complex. Of the eleven, two patients died of other diseases within a few weeks or months of operation. Another patient died of bronchopneumonia immediately after operation. Of the eight living patients who have been traced to the present time, all are well or so nearly so as to express themselves as satisfied. Several still have to exercise care in diet. Division of the bands may be said, then, to have been curative, with this reservation: Division of the bands plus a plastic operation (Finney) has given more completely satisfying results.

27. **Indications for Wet Packs in Psychiatric Cases.**—An analysis of 1,000 packs given at the Psychopathic Hospital, Boston, was made by Adler. These cases were gathered from unselected clinical material in the order in which they were given, and represent 309 patients. According to this analysis, 155 were quieted by the packs, 56 were not quieted by the packs, 98 were quieted by some and not quieted by others, or, in order words, had a partial effect. In the 79 cases of manic depressive insanity, 326 packs were given with a quieting effect in 144, without quieting effect in 218 packs, whereas in the 82 dementia praecox cases, only 217 packs were given, with quieting effect in 143, and without quieting effect in only 74. The same disproportion is shown by the cases of manic depressive insanity showing agitated depression. In 8 cases 26 packs were given, 8 with quieting effect, 18 without quieting effect. In all the other groups, including general paresis, delirium tremens, alcoholic hallucinosis and epilepsy, by far the majority of packs had a quieting effect. It would seem, then, that excitement in conditions other than manic depressive insanity is to be considered rather as a secondary manifestation, and one which is more easily controllable by hydrotherapy.

28. **Syphilis of Lungs.**—From twenty-two patients Wood has selected a series with histories suggestive of syphilis, whose physical examination showed definite lung impairment. If the Wassermann test proved positive, Wood had sputum examinations made and Pirquet tests tried. If these proved negative, he had roentgenograms taken of the chest and long bones of the lower leg. He was able to select seven patients that showed definite histories, definite lung impairment, positive Wassermanns, negative sputum and Pirquet tests. To these were added four cases which did not meet the above requirements. One patient had a few tubercle bacilli in the sputum, Gaffky No. 2, but had in addition a markedly positive Wassermann test and definite roentgenographic findings. The three others were children in whom the diagnosis of tuberculosis had been made and who had been carefully treated for tuberculosis. Repeated examinations of sputum have shown no tubercle bacilli, but their family histories were suggestive of syphilis. No Wassermann tests or roentgenograms were made.

Cleveland Medical Journal

September, XV, No. 9

30 Relation Between Systemic Disease and Focus of Infection in Upper Air Passages. J. D. Osmond, Cleveland.—p. 559.
31 *Ocular Tuberculosis; Report of Cases. R. B. Metz, Cleveland. —p. 567.
32 Medical Missionary's Journey to Persia in War Time. R. E. Hoffman, Persia.—p. 576.

31. **Ocular Tuberculosis.**—In summarizing Metz' report the following facts seem salient: Of ten cases comprising scleritis, sclerosing keratitis and sclerochoroiditis, tuberculosis was definitely present in eight. This was shown by a reaction following tuberculin inoculations in five, all the patients who were inoculated reacting; in three there were signs of pulmonary tuberculosis; in one case signs of an old pulmonary process, and in one case the examination could not be completed. All four patients with choroiditis reacted to tuberculin injections. Each of the ten cases, four of scleritis, two of sclerochoroiditis and four of choroiditis, in which the blood Wassermann test was performed, reacted negatively, while the nine of these patients inoculated with diagnostic doses of tuberculin, reacted positively. In one patient not inoculated, the physical signs of pulmonary tuberculosis were prominent. The seven patients in whom a general reaction followed the diagnostic use of tuberculin, showed negative physical findings. The eighth patient has yet to be roentgenographed. Of the nine reactions to tuberculin, eight were general, without an ocular focal reaction, while one was an ocular focal reaction without a general reaction. All six of the patients in whom the positive Pirquet reaction was followed by a diagnostic inoculation of tuberculin, reacted positively to the latter. Tuberculin therapy, in the five cases in which it was employed, accomplished the apparent cure or marked improvement not attending the use of the routine measures.

Delaware State Medical Journal, Wilmington

September, VII, No. 10

33 America's First Doctress. V. Robinson, New York.—p. 3.

Journal of Cutaneous Diseases, Boston

November, XXXIV, No. 11

34 Acrodermatitis Hiemalis; Report of Four Cases. M. B. Hartzell, Philadelphia.—p. 791.
35 Unusual Variety of Vitiligo (Leukoderma Acquisitum Centrifugum); Report of Four Cases. R. L. Sutton, Kansas City, Mo. —p. 797.
36 Undescribed Superficial Atrophy of Mucous Membranes of Tongue and Mouth. H. H. Hazen, Washington.—p. 801.
37 Exudative Diathesis, and Study of Acetone Bodies in Blood of Nine Cases. M. F. Engman and R. S. Weiss, St. Louis. —p. 804.
38 Importance of Visceral Symptoms in Dermatoses of Exudative Erythema Type. B. Foster, St. Paul, Minn.—p. 808.

Journal of Experimental Medicine, Baltimore

November, XXIV, No. 5

39 *Cicatrization of Wounds. Relation between Size of Wound and Rate of Its Cicatrization. A. Carrel and A. Hartmann, New York.—p. 429.
40 Id. Mathematical Expression of Curve Representing Cicatrization. P. L. Du Noüy, New York.—p. 451.
41 Id. Relation Between Age of Patient, Area of Wound and Index of Cicatrization. P. L. Du Noüy, New York.—p. 461.
42 *Prophylaxis of Weil's Disease (Spirochaetosis Icterohemorrhagica). Y. Ido, R. Hoki, H. Ito and H. Wani, Kyushu, Fukuoka. —p. 471.
43 *Serum Treatment of Weil's Disease (Spirochaetosis Icterohemorrhagica). R. Inada, Y. Ido, R. Hoki, H. Ito and H. Wani, Kyushu, Fukuoka.—p. 485.
44 *Experimental Observations on Pathogenesis of Gallbladder Infections in Typhoid, Cholera and Dysentery. H. J. Nichols, San Francisco.—p. 497.
45 Studies on Blood Proteins. Serum Globulins in Bacterial Infection and Immunity. S. H. Hurwitz and K. F. Meyer, San Francisco.—p. 515.
46 *Relation Between Thyroid and Parathyroid Glands. A. Tanberg, Christiania.—p. 547.
47 Studies on Treponema Pallidum and Syphilis. Further Studies on Relation of Culture Pallida to Virulent Pallida and on Reinfection Phenomena. H. Zinsser, J. G. Hopkins and M. McBurney, New York.—p. 561.
48 *Respiratory Mechanism in Pneumonia. L. H. Newburgh, J. H. Means and W. T. Porter, Boston.—p. 583.
49 *Influence of Vagus Nerves on Conduction Between Auricles and Ventricles in Dog During Auricular Fibrillation. G. C. Robinson, St. Louis.—p. 605.

39. **Relation Between Size of Wound and Rate of Its Cicatrization.**—The rate of cicatrization of a wound, according to Carrel and Hartmann, is greater at the beginning than at the end of the period of repair. It depends on the area rather than on the age of the wound. There is a constant relation between the size of a wound and the rate of cicatrization. The larger the wound the greater is the rate of cicatrization. Two wounds of different size have a tendency to become equal. The rate is proportional to the area, but diminishes less rapidly than the area. The process of contraction is the more important factor in the repair of a wound. Epidermization completes the work of contraction. After the wound is healed, the cicatrix, as a rule, expands.

42. **Weil's Disease (Spirochaetosis Icterohemorrhagica).**—Experimentally, the authors could show that spirocheticidal and spirochetalytic bodies develop in the blood of the guinea-pig after repeated inoculations which protect the animal from an injection of fresh, virulent spirochetes. They have not yet tested the duration of this active immunity. Passive immunization is perhaps not possible. They undertook the immunization of a horse through inoculation with vaccine. After demonstrating the appearance of immune bodies in the blood of the horse, they proceeded to the active immunization of man. At first they tested the vaccine which was

employed for immunizing the guinea-pigs, but unsuccessfully. Later they prepared a vaccine ten times as strong as the first and with it obtained good results for the first time. Individuals subject to, but who had not had Weil's disease, were inoculated subcutaneously, and tests were made for the immune bodies after a definite period. Pfeiffer's test made with the serum taken before inoculation does not differ from the control test, while that made with the serum drawn after the inoculation shows the presence of immune bodies. The authors are convinced of the existence of a relation between Weil's disease and rats. The infection is transmitted probably from rats to man by means of the urine of the rats, directly or indirectly. On the injection of 0.1 gm. of rat urine which contains *Spirochaeta icterohemorrhagia* into the peritoneal cavity of guinea-pigs, the infection arises, while the injection of the liver or the blood of the rats into guinea-pigs does not produce the typical disease.

43. **Serum Treatment of Weil's Disease.**—The authors first employed serum from recovered patients and later serum obtained from actively immunized horses. As human convalescent serum is not procurable in large quantities, a horse was immunized with *Spirochaeta icterohemorrhagia*. Of the thirty-five patients who received the serum treatment, seven died. The mortality of Weil's disease in Japan is said to be from 30 to 48 per cent. In view of the reduction in the mortality rate, the authors claim that the administration of the serum has a marked effect in Weil's disease. With rare exceptions the serum destroys completely the spirochetes contained in the circulating blood. The development of antibodies is promoted by the serum injections. The number of spirochetes in the organs is reduced by the treatment. Secondary manifestations due to the serum are slight and disappear promptly. The ultimate effects of the serum treatment on the symptoms and final outcome of the disease have still to be determined.

44. **Pathogenesis of Gallbladder Infections.**—The results of Nichols' experiments support the theory of descending infection of the gallbladder through the bile from the liver. Infection of the gallbladder wall cannot be ruled out absolutely and probably occurs at times, but the bile ducts seem to be the regular avenue of infection. This conclusion suggests that prophylactic measures and possibly curative measures should be directed toward the bile rather than toward the blood stream and tissues. Vaccination, for example, appears to have little effect in the prevention and cure of experimental or clinical lesions, and in fact may favor the production of lesions by increased elimination of organisms in the bile. Human bile must have some antiseptic action, because, in any septicemia, some micro-organisms undoubtedly pass through the bile-ducts and gallbladder, but in only a comparatively few cases do they produce a definite cholecystitis. Alkaline therapy is suggested in the prevention and cure of gallbladder carriers.

46. **Relation Between Thyroid and Parathyroid Glands.**—The experiments performed by Tanberg showed that an excessive meat diet develops hypertrophy of the thyroid. A definite hypertrophy of the parathyroids under the same conditions has not been established. A meat diet does not develop hypertrophy of the thyroid when insufficiency of the parathyroids exists at the same time, even if no clinical symptoms are present. In cases in which a pronounced hypertrophy caused by a meat diet has already developed, the hypertrophy disappears and the gland assumes its ordinary appearance after extirpation of a sufficiently large number of parathyroid glands. After parathyroidectomy no hypertrophy of the thyroid takes place. In chronic tetany the thyroid seems, on the contrary, to atrophy in spite of a meat diet. After complete extirpation of the thyroid, the parathyroid does not change its structure, even in cases in which the cachexia lasts for several years. Small remaining parts of the thyroid may through hypertrophy develop into compact tissue and thereby seemingly present some points of resemblance to the parathyroid. When the parathyroid hypertrophies, as in some forms of chronic tetany, this hypertrophy is characterized by the development of large, transparent, sharply defined cells, with large nuclei rich in chromatin. The parathyroid and thyroid are independent organs, each having specific functions. This, however, does not exclude the occurrence of a direct or indirect interaction in the functions of the two systems. There is reason to believe that an insufficiency of the parathyroid checks to some extent the function of the thyroid. No proof of the existence of a vicarious cooperation between the two glands has been established.

48. **Respiratory Mechanism in Pneumonia.**—Briefly, the authors found that the reaction of the respiratory mechanism to carbon dioxid is greatly diminished in pneumonia. The graver the disease, the less the reaction.

49. **Influence of Vagus on Conduction Between Auricles and Ventricles.**—Robinson's experiments indicate that stimulation of either the right vagus or the left vagus nerve is equally effectual in blocking impulses from the auricles to the ventricles when auricular fibrillation is present. Stimulation of the left vagus nerve is as effectual in blocking impulses from the normally beating auricles as from the auricles when in a state of fibrillation, and the type of auricular activity has apparently no influence on the effect which stimulation of the left vagus has on auriculoventricular conduction.

Laryngoscope, St. Louis

October, XXVI, No. 10

50 Tracheobronchial Diphtheria. H. L. Lynah, New York.—p. 1193.
51 Plea for Electrocautery in Treatment of Laryngeal Tuberculosis. S. Iglauer, Cincinnati.—p. 1237.
52 Case of Spontaneous Hemorrhage from Ear. J. B. Shapleigh, St. Louis.—p. 1241.
53 Ruptured Aneurysm into Mediastinum and Deep Cervical Fascia with Symptoms of Ludwig's Angina; Report of Three Cases. E. M. Holmes, Boston.—p. 1246.
54 Epithelioma of Larynx Treated by Radium. C. G. Coakley, New York.—p. 1250.
55 Use of Tissue Juices for Control of Bleeding Tonsillectomy. J. B. Greene, Asheville, N. C.—p. 1254.

Medical Record, New York

November 4, XC, No. 19

56 Acute Poliomyelitis. H. L. Abramson, New York.—p. 793.
57 Dreams and Dreamers. I. Bram, Philadelphia.—p. 799.
58 Tuberculosis and Cancer. W. M. Dabney, Baltimore.—p. 804.
59 Anaphylaxis to Mercury; Report of Case. M. Zigler, New York.—p. 805.
60 Induced Paranoiac Conditions. A. K. Petery, Norristown, Pa.—p. 807.
61 Development of Litholapaxy During Sixty-Two Years from Civiale to Bigelow. C. A. Bucklin, Glasgow.—p. 809.
62 Anomalous Cases of Mastoiditis. C. B. Broder, New York.—p. 811.
63 Case of Gastric Ulcer. J. R. Verbrycke, Jr., Washington, D. C.—p. 812.

November 11, No. 20

64 Achylia Gastrica; Study of Sixty-Five Cases. A. F. R. Andresen, Brooklyn.—p. 839.
65 Hormone Equation of Psychoses. C. R. Carpenter, East San Diego, Calif.—p. 843.
66 Infant Malnutrition. W. H. Porter, New York.—p. 847.
67 Case of Auricular Fibrillation. J. W. Smith, Jr., Brooklyn.—p. 848.
68 Personal Experiences in Contract Practice. L. F. Herz, New York.—p. 849.
69 Military Quarantine Stations of Hungary. B. F. Morowitz, New York.—p. 852.
70 Economical, Efficient and Speedy Method of Administering Salvarsan and Similar Preparations. G. N. Kreider, Springfield, Ill.—p. 854.
71 Study of Newer Physical Signs in Diagnosis of Early Pulmonary Tuberculosis. M. Grossman, Brooklyn.—p. 855.

Michigan State Medical Society Journal, Grand Rapids

November, XV, No. 11

72 *Age and Arterial Degeneration. B. A. Shepard, Kalamazoo.—p. 515.
73 Anatomy and Surgery of Knee Joint. A. M. Campbell, Grand Rapids.—p. 521.
74 Traumatic Transplantation of Cilia into Anterior Chamber. H. L. Begle, Detroit.—p. 527.
75 Campaign Against Tuberculosis. W. De Kleine, Lansing.—p. 529.
76 *Diagnostic Importance of Pancreas. M. A. Mortensen, Battle Creek.—p. 532.
77 Case of Gangrene of Leg Following Thrombus Occlusion of Popliteal Artery—Post Traumatic. H. J. Vanden Burg, Grand Rapids.—p. 536.
78 Suppuration of Large Dermoid Cyst Reaching to Umbilicus. Cases Illustrating Substitution of Rectal for Vesical Sphincter. R. Peterson, Ann Arbor.—p. 538.

79 Case of Carcinoma of Pancreas. Case of Carcinoma or Syphilis of Stomach. H. B. Schmidt, Ann Arbor.—p. 542.
80 Case of Lead Palsy of Upper Arm Type. C. D. Camp, Ann Arbor.—p. 544.

72. Abstracted in THE JOURNAL, Sept. 9, 1916, p. 835.

76. **Diagnostic Importance of Pancreas.**—Mortensen urges that the pathologic conditions of the intestinal organs should be considered more frequently in reference to the possibility of their causing pancreatitis at a later period. He says that the majority of cases of evanescent glycosuria develop graver cases of diabetes at later stages. The fact that pancreatic disease frequently exists without disturbance in the carbohydrate metabolism is often overlooked. In all suspected cases of acute pancreatitis, a careful history should be obtained, as injuries of a minor nature may constitute the etiologic factor. The symptom of pain in the abdomen, and especially in the back, is very important and characteristic. The condition of shock accompanying the hemorrhage is an important symptom. The first hemorrhage causes degeneration of the pancreatic tissue and this in turn leads to subsequent hemorrhages. The symptom of pain in the back also occurs in malignant disease of the pancreas. These cases of pancreatic affection may occur without the presence of sugar in the urine.

Missouri State Medical Association Journal, St. Louis

November, XIII, No. 11

81 Importance of Early Diagnosis and Proper Treatment in Insanity. B. R. McAllaster, Carthage.—p. 525.
82 *Sporadic Meningitis in Children. P. G. Hurford, St. Louis.—p. 528.
83 Sacro-Iliac Strains and Luxations; Report of Cases. J. G. Hayden, Kansas City.—p. 531.
84 *Systemic Blastomycosis and Coccidioidal Granuloma with Description of First Case of Coccidioidal Granuloma Reported in Missouri. S. T. Lipsitz, St. Louis.—p. 534.
85 Differential Diagnosis of Some More Common Types of Psychoses. F. M. Barnes, Jr., St. Louis.—p. 536.
86 Cardiac Incompetency. H. D. Hamilton, Kansas City.—p. 539.
87 *Need of County Health Officer. J. Q. Cope, Lexington.—p. 542.
88 Tetanus. J. M. Hale, Dearborn.—p. 546.
89 Surgical Treatment of Gallstone Disease. R. Hill, St. Louis.—p. 548.
90 Tumors of Bladder and Their Treatment with High Frequency Cauterization. Report of Cases. L. G. Bartels and F. S. Halsted, St. Louis.—p. 550.

82, 84 and 87. Abstracted in THE JOURNAL, June 24, p. 2121.

New Mexico Medical Journal, Las Cruces

October, XVII, No. 1

91 Some of the Problems in Southwest. E. F. Frisbie, Albuquerque.—p. 5.
92 Early Symptoms of Upper Abdominal Disease. H. A. Black, Pueblo, Colo.—p. 16.

New Orleans Medical and Surgical Journal

November, LXIX, No. 5

93 Operations on Kidney and Ureter Under Local Anesthesia. C. W. Allen, New Orleans.—p. 329.
94 Dr. Carlos J. Finlay's Positive Cases of Experimental Yellow Fever. C. E. Finlay, Havana, Cuba.—p. 333.
95 Finlay and Delgado's Experimental Yellow Fever. A. Agramonte, Havana, Cuba.—p. 344.

New York Medical Journal

November 4, CIV, No. 19

96 Patient Is Left Out. R. T. Morris, New York.—p. 877.
97 Impotence in Male; Preliminary Report on Use of Anterior Lobe Pituitary Body. T. C. Stellwagen, Jr., Philadelphia.—p. 879.
98 Chronic Appendicitis and Chronic Intestinal Toxemia; Report of Cases. G. R. Satterlee, New York.—p. 882.
99 Chronic Gonorrhea in Male. J. Kaufman, New York.—p. 885.
100 Physics of High Frequency Current. A. C. Geyser, New York.—p. 891.
101 Primary Syphilis of Rectum; Report of Case. W. E. Jost and R. B. H. Gradwohl, St. Louis.—p. 893.
102 Oral Administration of Epinephrin. H. R. Harrower, Los Angeles.—p. 893.
103 Anesthesia Reviewed. J. T. Gwathmey, New York.—p. 895.
104 Tracheobronchitis Due to Nitric Acid Fumes. C. Jackson, New York.—p. 898.
105 Malocclusion of Teeth. H. C. Ferris, New York.—p. 899.
106 Autotherapy in Ivy Poisoning. C. H. Duncan, New York.—p. 901.

November 11, No. 20

107 Blood and Its Vessels in Epilepsy and Their Treatment. T. E. Satterthwaite, New York.—p. 929.
108 Strychnin as Tonic. W. F. Milroy, Omaha.—p. 931.
109 Final Control in Medicine. B. Robinson, New York.—p. 933.
110 Epilepsy. T. E. McMurray, Wilkinsburg, Pa.—p. 934.
111 Postures and Types of Breathing Exercises. N. K. Mankell and E. C. Koenig, Buffalo.—p. 934.
112 Relationship Between Nervous System and Therapeutics in Pulmonary Tuberculosis. F. M. Pottenger, Monrovia, Calif.—p. 939.
113 *Case of Joint Hypotonia. H. Finkelstein, New York.—p. 942.
114 Acute Mastoiditis. H. Hays, New York.—p. 945.
115 Shall We Get Rid of Tuberculosis At Last? R. C. Newton, Montclair, N. J.—p. 948.
116 Struggle for Binocular Single Vision. A. Brav, Philadelphia.—p. 949.
117 One Thousand Wassermann Reactions. J. M. Ladd, Indianapolis.—p. 952.

113. **Joint Hypotonia.**—Finkelstein reports a case which differs in nearly all its essentials from Oppenheim's myotonia congenita. The characteristic feature is a striking degree of joint mobility involving practically all the joints of the body without apparent demonstrable muscle weakness. It is not only congenital, but familial as well. There is no interference with the motor power, not even a weakening of the muscles, nor is there any loss of reflexes. The electric reactions are normal. Nearly all the joints of the body are involved. The roentgenogram shows no evident lesions in the bones. The only structures affected are the capsules and ligaments of the joints. The prognosis, judging by the progressive improvement which occurred in the other affected members of the family is favorable. This is the only case of its kind that has come before the author's observation in a decade, and no similar instance has been cited in the literature.

Oklahoma State Medical Association Journal, Muskogee

November, IX, No. 11

118 Endometritis. L. E. Andrews, Oklahoma City.—p. 349.
119 Some Pathologic Conditions of Thyroid. F. H. Clark, El Reno.—p. 352.
120 Procidentia. W. E. Dicken, Oklahoma City.—p. 358.
121 Danger Signals Due to Approach of Menopause. W. G. Bisbee, Chandler.—p. 361.
122 Parental Care; Its Relation to Conservation of Mother and Child. W. A. Fowler, Oklahoma City.—p. 364.
123 Contagiousness of Puerperal Fever. S. N. Stone, Edmond.—p. 368.
124 Prostatic Abscess Secondary to Infected Hand. J. H. Sturgeon, Oklahoma City.—p. 370.

Ophthalmic Record, Chicago

November, XXV, No. 11

125 Congenital Glaucoma and Some Allied Conditions. R. H. Elliot, London.—p. 541.
126 Case of Refraction Demanding Cylinders Crossed at Oblique Axes, Together with Theory and Practice Involved. C. Sheard, Columbus.—p. 558.
127 Case of Anilin Ophthalmia. W. N. Sharp, Indianapolis.—p. 567.
128 Some Experiences with Pasteurization Method in Treatment of Corneal Ulcers. W. J. Gilbert, Calais, Me.—p. 569.

Providence Medical Journal

November, XVII, No. 6

129 Suppurative Hepatitis. W. B. Cutts, Providence.—p. 308.
130 Empyema of Gallbladder. G. W. Gardner, Providence.—p. 323.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

October 21, II, No. 2912

1 *Highly Strung Nervous System. G. Rankin.—p. 545.
2 Practical Hints on Functional Disorders. M. Culpin.—p. 548.
3 *Intravenous Injection of Gynocardate of Soda in Leprosy. L. Rogers.—p. 550.
4 *Treatment of Certain Diseases of Protozoal Origin by Tartar Emetic, Alone and in Combination. A. Castellani.—p. 552.
5 Hydrotherapy as Agent in Treatment of Convalescents. F. Radcliffe.—p. 554.
6 Blood Culture Technic. R. L. Thornley.—p. 555.
7 Digested and Diluted Serum as Substitute for Broth for Bacteriologic Purposes. A. Distaso.—p. 555.

1. **Highly Strung Nervous System.**—Rankin concludes his paper as follows: The evidences of a highly strung nervous system furnished by the uterus and ovaries are too numerous to admit of discussion here. They are responsible for much personal misery and domestic discord. The frequency with

which elaborate local treatment of one kind and another has become fashionable raises doubts in the minds of many as to its wisdom—even as to its justification. The removal of an ovary, often for a problematical reason, uterine douchings and curettings, vaginal packings, and all the rest of it, may succeed in relieving the local "congestion" which is supposed to be responsible for the dragging pains, the excessive menstruation, and the failure to conceive. But what about the effect on the nervous steadiness and general tone of the patient? The question in this wider aspect is probably not always seriously enough considered, but if greater attention were given sufficiently early to the maintenance of the central nervous system in a condition of robust and self-reliant integrity, and to the regulation of daily habits of life on lines of greater simplicity and homely regularity, the need for most of such treatment would vanish, and it would be found again, as in the days of our grandmothers, that the pelvic organs, in the absence of actual organic disease, might with advantage be left in most cases to look after themselves.

3. **Use of Gynocardate of Soda in Leprosy.**—Gynocardic acid and chaulmoogric acid are synonymous. The method of preparation of sodium gynocardates is described in detail by Rogers, who has completed a year's experience of the subcutaneous method of administration of this agent in nine cases: five of the anesthetic type and four tubercular. The results in the anesthetic cases are regarded as promising. The tubercular cases have responded rather more slowly to the treatment and there is greater local pain and induration at the sites of the injections. Rogers begins with one-tenth grain, and increases by one-tenth grain at each successive dose, using a 2 per cent. solution. He has given up to four fifths of a grain with no immediate effect, or any sign of toxic influence, apart from local reactions and fever, and, rarely, some headache. Rogers has given about 200 intravenous injections of gynocardate, and his experience has led him to substitute it almost entirely for the subcutaneous method.

4. **Treatment of Certain Diseases by Tartar Emetic.**—Castellani reiterates that tartar emetic is of great efficacy in various protozoal diseases. Its powerful action in trypanosomiasis has been well proved, and it can be considered a specific in espundia, granuloma inguinale, kala-azar and oriental sore. It is efficacious in yaws, especially if combined with other drugs, and seems to have a beneficial action also in relapsing fever. Castellani has modified the formula of his mixture as follows:

	gm. or c.c.	
℞ Tartar emetic	.066	gr. j
Sod. bicarb	1	gr. xv
Sod. salicyl.	.666	gr. x
Potass. iodid	4	ʒ j
Glycerin	8	ʒ ij
Or syrup	4	ʒ j
Or sod. tartarat.	.666	gr. x
Aquam ad	30	ʒ j

It is given in the same doses as the original formula, and, as is the case with the original mixture, only half doses should be given to European patients. It should always be given diluted with water.

Glasgow Medical Journal

October, LXXXVI, No. 4

8 *Soldier's Heart. I. Mackenzie.—p. 193.
9 Reduction of Myopia in Children of School Age. W. B. I. Pollock.—p. 214.

8. **Soldier's Heart.**—A mixture which Mackenzie has found extremely beneficial in many cases of "soldier's heart" is the following:

	gm. or c.c.	
℞ Ammon. brom.		
Liq. extract ergot ..... āā	24	ʒ vi
Tinct. digitalis	8	ʒ ii
Spt. ammon. aromat.	16	ʒ ss
Aquae ad	180	ʒ vi

* M. Sig.: (1) ʒss. in water, after meals every four hours for two days; (2) ʒss. in water, after meals three times a day for a week after; (3) gradually reduce to twice daily, and then once daily according to reaction.

When the symptoms of fatigue have passed off, massage should be employed, and cool baths should be given instead of warm baths. Gradual active exercise should then be commenced, and continued under observation. In this way, equilibration of the circulation is mechanically assisted, and the mental attitude is diverted to a more normal course. Special attention should be paid to the treatment of sleeplessness, restlessness and alimentary symptoms. Tobacco and alcohol should be avoided in every case.

Journal of Tropical Medicine and Hygiene, London

October 16, XIX, No. 20

10 Diseases of China. J. L. Maxwell.—p. 237.

Lancet, London

October 21, II, No. 4860

11 Spirit of Medicine. J. M. Bruce.—p. 701.
12 *Some Observations on Dysentery. W. Magner.—p. 703.
13 Series of Military Cases Treated by Hypnotic Suggestion. J. B. Tombleson.—p. 707.
14 Luetin Reaction in Syphilis. W. Fletcher.—p. 710.
15 *Surgical Uses of Ozone. G. Stoker.—p. 712.
16 Placenta Praevia and Cesarean Section. A. G. Tresidder.—p. 712.
17 Left Fallopian Tube Found in Left Femoral Hernia. E. G. Renny.—p. 713.

12. **Dysentery.**—Magner reviews this whole subject from a practical point of view. He says both in amebic and bacillary dysentery secondary invasion of the ulcerated intestinal wall by organisms from the intestinal lumen is an important factor aggravating both the local and general condition. The pyrexia so frequently observed in the later stages of amebic dysentery is a result of this secondary invasion, and though usually toxic in origin may be due to bacterial invasion of the blood stream. A similar septicemia may occur in the bacillary type of the disease. Amebic dysentery may be latent, the ulcers being confined to the cecum and producing no symptoms. Apart from the danger of the disease becoming active, such cases may act as foci for the spread of the disease. Magner advises that every patient with amebic dysentery be treated by the administration of at least 10 grains of emetin. Incomplete treatment may result in the patient becoming a cyst carrier and a danger to the community. The prevention of amebic dysentery depends on the elimination of cyst carriers, rapid and complete disposal of fecal matter, and protection of food from dust and flies.

In bacillary dysentery the earliest pathologic change in the intestinal wall is dilatation of the vessels and a marked hemorrhagic exudation into the submucous coat. Leukocytic accumulation is a later phenomenon resulting on necrosis of tissues. Mannite-fermenting dysentery bacilli can exist in the intestine in an avirulent form. The presence of such an organism in the stools loses much of its significance in the absence of a positive Widal reaction. The agglutination reaction in dysentery is a valuable means of differentiating the bacillary type of the disease. In Shiga infections specific agglutinins are invariably present after the first week of the disease. Distinct agglutination with a serum dilution of 1 in 100 is diagnostic. Judging from serologic tests, Magner says, it would appear that certain organisms, normally saprophytic, may in both types of dysentery stimulate the production of specific agglutinins as the result of invasion of the ulcerated intestinal wall. The toxins of Shiga's bacillus are highly pathogenic to rabbits. Subcutaneous injection with either living or killed cultures results in the development of paralytic symptoms and death. The characteristic lesions of the human disease cannot readily be reproduced.

15. **Surgical Uses of Ozone.**—The treatment used by Stoker in twenty-one cases consists of the application of ozone to the affected parts; ozone is a strong stimulant and determines an increased flow of blood to the affected part. It is a germicide which destroys all hostile micro-organic growth. It has great powers in the formation of oxyhemoglobin. The ozone is applied on the wounded surface or to the cavities and sinuses for a maximum time of fifteen minutes, or until the surface becomes glazed. Ozone has the particular power of disclosing dead bone, foreign bodies, septic deposits, etc. This, Stoker believes, it does by destroying the granulations and micro-organic growths (presumably unhealthy) that are found in close contact with septic deposits, foreign bodies, or dead bone. Wounds, sinuses, etc., are washed twice daily with boiled water and a dressing of dry gauze is applied. At

first ozone causes an increase of the discharge of pus; later the pus is replaced by clear serum, which, at a still later stage, becomes colored reddish or pinkish. In open wounds it is necessary to strip off the parchment-like film surrounding the edges, which is composed of oxidized serum. This is easily effected by applying a hot compress for fifteen or twenty minutes, after which the film can easily be peeled off with dissecting forceps.

Paris Médical

October 14, VI, No. 42, pp. 329-344

18 Bacteriology and Infectious Diseases in German Medical Journals of the Last Two Years. (A travers les journaux médicaux allemands.) P. Remlinger.—p. 330.
19 *Surgery in the Ambulance Close to the Firing Line. A. Schwartz.—p. 335.
20 Roentgenoscopic Diagnosis of Accumulation of Gas in Organs, of Infectious or Therapeutic Origin. De Keating Hart.—p. 339.
21 Mercurial Stomatitis after Ingestion of Calomel; Three Cases. A. Satre.—p. 341.
22 Does Tax on War Profits Apply to Physicians? (L'impôt sur les bénéfices de guerre.) L. Bocquet.—p. 343.

19. **Surgical Work at the Front.**—Schwartz reviews his impressions and the lessons he has learned from twenty-one months' experience in ambulances close to the firing line. His main text is the necessity for clearing out the wound at the earliest possible moment, transforming it into a smooth, clean cavity with no recesses, open to the exterior by one or two large incisions, and amply drained, bearing in mind that at this early stage the wound is only soiled, not infected. Systematic resection of the walls of the cavity into sound tissue is possible at this stage.

Presse Médicale, Paris

October 12, XXIV, No. 57, pp. 453-460

23 *Operative Treatment of Acute Mastoiditis. (Comment doit-on opérer une mastoidite aigue et en particulier une mastoidite traumatique.) J. Guisez.—p. 453.
24 French Health Resorts in Treatment of Wounded and Sick Soldiers. (Les stations hydrominérales et climatiques françaises dans la cure des blessés et malades de guerre.) R. Glénard. —p. 456.

23. **Mastoid Operation.**—Guisez shows steps of the operation in twenty illustrations in order to aid the nonspecialist called on for an urgent operation of the kind, especially after trauma.

Deutsche medizinische Wochenschrift, Berlin

September 21, XLII, No. 38, pp. 1149-1180

25 *Respiratory Affections in the War. (Erfahrungen über die Erkrankungen der Respirationsorgane im Kriege.) H. Hochhaus.—p. 1149.
26 *Nervous Affections, Especially Epilepsy, from Military Standpoint. E. Stier.—p. 1153. To be continued.
27 *Duration of Protection Conferred by Vaccination. (Zur Beurteilung der Dauer des Pockenimpfschutzes.) H. A. Gins.—p. 1155.
28 *Bacterium Found in Typhus Patients That Reproduces the Disease in Guinea-Pigs. (Zur Aetiologie des Fleckfiebers.) H. Töpfer and H. Schüssler.—p. 1157.
29 Glanders in Man; Two Cases. (Zwei Fälle von menschlichem Rotz.) Heinemann and Dschewdet Bei.—p. 1158.
30 Should a Defect in the Dura Be Patched at Once? (Darf die Durawunde der Schädelschüsse primär plastisch gedeckt werden?) Szubinski.—p. 1161. Concluded.
31 Screw Apparatus for Extension Immobilization. (Zur Behandlung der Extremitäten-Schussfrakturen mit der Schraubenextensionsschiene.) H. Wohlgemuth.—p. 1163.
32 *The Internal Ear Serves as a Compass. (Das Ohrlabyrinth als Kompass.) Güttich.—p. 1165.
33 Hematuria from Long Horseback Exercise. (Nierenblutung durch Nierenerschütterung.) Gast.—p. 1166.
34 The Field Hospitals as Schools for Hygiene. (Einiges über hygienische und soziale Aufgaben in den Lazaretten.) H. Ziemann.—p. 1166.
35 The Tasks That Confront Infant Welfare Work. (Die gesundheitlichen Gefahren für unseren Nachwuchs und die Aufgabe und Bedeutung der öffentlichen Fürsorge.) A. Niemann.—p. 1169.

25. **Diseases of the Respiratory System in War.**—Hochhaus analyzes 1,200 cases of disease of the air passages in soldiers, nearly all on active service. The list includes 34 cases of pleurisy with effusion and 68 wounds of the lungs, 48 of pneumonia, 3 cases of a tumor in the lung, and 420 cases of bronchial trouble. The other 560 men had pulmonary tuberculosis. The latter proved to be the flaring up of some old tuberculous process in at least 40 per cent., and necropsy in 50 cases showed old and far-advanced tuberculous foci. The course in all seemed to be more rapidly progressive than in peace times, especially in those who had been on active service. It was noticed in 4 cases that an intercurrent infectious sore throat whipped up the disease. In differentiation, only when all methods were applied and compared was the diagnosis reliable. The Pirquet skin tuberculin test failed to elicit a response in many of the unmistakable cases, even those not far advanced. In some cases with hemoptysis under his eyes, no pathologic findings could be detected although the men were long under observation. The open air life has had an undoubtedly strengthening and stimulating influence in many cases of mild tuberculous affections, so the men have no trouble from them.

Chronic bronchial affections were difficult to manage as new exacerbations constantly followed exposure. Asthmatic catarrh proved exceptionally rebellious. Long bed rest and medication were necessary to restore approximately normal conditions, and a return to service, even to garrison duty, speedily brought on severe relapses, so that the men had finally to be dismissed from the army. It seems wiser not to pass asthmatics for military service, even although the men may happen to feel well at the time. Two of these men with asthma and chronic bronchitis had repeated attacks about every two weeks, with high fever, sweats, cyanosis, dyspnea and rapid pulse. These attacks lasted only for a few days, and then the symptoms subsided completely until the next attack, the intervals gradually lengthening. He noticed that men with an old healed apical process seemed to be especially susceptible to "catching cold."

Mouth-breathing seems to be an important factor in bronchitis. The bronchi are exposed more to injury than when the man breathes through the nose. There were no deaths from bronchial affections alone, but the constant return of trouble on resumption of duty after improvement under treatment finally compelled the discharge from the service of quite a number of the men. Injury of the lungs by bullets caused incredibly small disturbance as a rule. The resulting infiltration and pleuritis were mild and soon subsided. In some cases the men scarcely felt the entrance of the bullet; in others the men fainted from the pain. Even when the bullet had healed in the tissues, the occasional complaints of dyspnea and palpitations seemed to be mainly functional, and other signs of neurasthenia confirmed this. Cancer of the bronchi or pleura in three men in the thirties developed with symptoms suggesting incipient tuberculosis. The extension of the process and the Roentgen findings corrected the diagnosis.

26. **Epilepsy and Military Service.**—Stier remarks that the old regulation that epilepsy debars from military service still holds good, even in these days when the barriers have been lowered to admit many recruits that would have been rejected in peace times. The assumption of epilepsy has however been modified, so that now it requires the testimony of three reliable witnesses who have seen at least one seizure each, and can describe it in detail with the date, place and other details; or the testimony of a physician who has witnessed himself the occurrence of a seizure; or the testimony of a specialist. The three lay witnesses may be members of the man's family, and the details which they relate are most useful for the final decision. The regulations provide further for the acceptance of the testimony of an army or navy medical officer who has witnessed a seizure or the immediate and direct consequences of one. These new regulations have much facilitated the task of speedy weeding out of epileptics. Symptomatic epilepsy and epileptoid psychopathies do not come under the ban of true epilepsy, but are classed under other headings. Stier's article is not completed in this number.

27. **Duration of Protection Afforded by Vaccination.**—Gins states that 500 men and 500 women were recently vaccinated at Berlin against smallpox before they were allowed to serve as nurses to the wounded. The reaction to the vaccination was recorded in each instance and classified according to four grades of intensity. Ten responded with a typical pustule

in those under 20; 16.9 per cent. of those between 21 and 25; 19 per cent., 26 to 30; 30.4 per cent., 31 to 35; 62.7 per cent., 36 to 40, and over 40, about 65 per cent. These and other figures cited show that the German custom of vaccination of infants and revaccination at the age of 12, confers immunity to the age of 40. It begins to dwindle from the thirtieth year onward, and after 40 only about a third are still protected by it and this only partially. At the same time, the testimony presented indicates that when there is no or only a faint response to the revaccination at 12, the subject runs no danger of ever having smallpox. He adds, "This presumptive variola-fast condition, however, cannot be guaranteed, as there is nothing perfect under the sun."

28. **Bacterium Causing Typhus.**—Töpfer and Schüssler found in lice taken from typhus patients a bacterium which induces a febrile affection in the guinea-pig, identical with that induced by injection of blood from a typhus patient. They found it impossible to cultivate this bacterium on any medium except in the intestinal canal of the body louse. The louse body must therefore be utilized for the culture medium until a better is found. Three microscopic fields of louse intestine are reproduced. Their research was done with 401 lice on thirty-five typhus patients, 101 lice on nineteen patients with other diseases, and 118 lice on twelve typhus convalescents. This bacterium was found constantly in the lice on patients with advanced typhus and never on others. After defervescence none were ever found, and the eggs and young of the lice were free from them. The bacterium is probably identical with the typhus "coccobacillus" described by Sergent and his co-workers, and also by Prowazek and Rocha-Lima. Töpfer in his previous communication on the subject stated that he had examined 2,000 lice and found this bacterium exclusively in those taken from typhus patients.

32. **The Ear Labyrinth as Compass.**—Güttich refers to the difficulty experienced by aviators in a fog in keeping their aeroplane horizontal. This is the result, he explains, of the rudimentary condition in man of a certain function of the internal ear, which is well developed in birds. It is connected with the way in which the eyeball retains its relative position, even in the blind, when the head is moved. It does not follow the movements of the head.

Medizinische Klinik, Berlin

September 24, XII, No. 39, pp. 1015-1038

36 Roentgen Diagnosis of Tumor in Large Intestine. H. Schlecht. —p. 1015. To be continued.
37 Gruels in Infant Feeding. (Wert des Schleims bei der Ernährung junger Säuglinge.) E. Klose and H. Bratke.—p. 1018.
38 Nephrosis. (Die Nephrosen.) F. Munk.—p. 1019. To be continued.
39 Gas Phlegmons; Nature and Treatment. Franz.—p. 1023.
40 *Kaolin and Acetone Mixture Sterilizes the Hands. (Ein neues Verfahren zur Händedesinfektion.) W. Burk.—p. 1026.
41 The Nature of Stuttering. (Zur Frage des Wesens der Stotterbewegungen.) E. Fröschels.—p. 1028.

40. **Acetone-Kaolin Method of Sterilizing the Hands.**—Burk reports comparative tests with the method he is now using, the results of the tests, he says, confirming its superior advantages. Kaolin is stirred into acetone to make a thin paste, and this is rubbed into the hands, tanning the skin and plugging all crevices. The paste is rubbed over the hands and forearms for five minutes; as the acetone evaporates a dry coating of kaolin is left. This is wiped off with a dry cloth. He uses about 300 gm. kaolin to 0.5 liter acetone.

Münchener medizinische Wochenschrift, Munich

September 19, LXIII, No. 38, pp. 1349-1380

42 *Electric Treatment with Psychic and Physical Training for Hysteric Contracture and Paralysis. (Ueber die Kaufmannsche Behandlung hysterischer Bewegungsstörungen.) F. E. O. Schultze.—p. 1349.
43 Symptoms of Duodenal Stenosis with Abnormal Ligament Connection of the Gallbladder. H. Schlecht.—p. 1353.
44 *Induced Venous Murmurs. (Ueber experimentell erzeugte Venengeräusche.) O. Muck.—p. 1354.
45 Dysentery. (Einige Fälle von Ruhrerkrankungen.) E. Hummel. —p. 1355.
46 Recent Court Decisions Affecting Physicians. XIV. (Der Arzt in der Rechtsprechung.) P. Kaestner.—p. 1356.
47 First Transportation of the Wounded. (Ueber den ersten Transport Verwundeter und seine Vorbereitung.) Wieting.—p. 1365.
48 Etiology of Five-Day Fever. (Zur Aetiologie des Fünftagefiebers.) H. Werner, F. Benzler and O. Wiese.—p. 1369.
49 Tendon Plastic Operations for Radial Paralysis. (Zur Frage der operativen Behandlung der Radialislähmung, bes. durch die Sehnenplastik.) H. Schreiegg.—p. 1370.
50 *Bimanual Exploration and Massage of the Prostate and Seminal Vesicles in Treatment of Gonorrhea. (Die bimanuelle Untersuchung der Vorsteherdrüse und der Samenblasen und ihre Bedeutung für die Behandlung der Gonorrhoe.) J. Jacobsohn. —p. 1371.
51 *Necrotic Acne Subsides on Giving Up Use of Tobacco; Eight Cases. (Acne necrotica und Tabakgenuss.) F. Weinbrenner. —p. 1372.
52 Treatment of Furuncles in Soldiers on Active Service. F. Kastan. —p. 1372.
53 *To Hasten Bacteriologic Diagnosis of Diphtheria. (Die Beschleunigung der bakteriologischen Diphtheriediagnose.) H. Langer. —p. 1373.
54 Device for Correction of Contracture of Knee and Elbow. (Ein Apparat zur Beseitigung hartnäckiger Knie- und Ellenbogenkontrakturen.) F. Loeffler.—p. 1373.
55 *Care of Soldiers' Feet. (Die Fusspflege im Heere.) F. Schede and W. Hacker.—p. 1375. Concluded.
56 Moss for Dressing Material. (Der Moosverband.) Kronacher. —p. 1378.
57 Simple Improvised Artificial Hand. (Eine einfachste Interimsprothese für die Hand.) W. Katz.—p. 1378.
58 Principle of Ball Bearings Applied to Extension Apparatus. (Kugellagerextension.) Köstlin.—p. 1379.

42. **Kaufmann's Method of Treating Hysteric Paralysis and Contracture.**—Schultze gives the minute details of the technic of this special combination of psychotherapy, electricity and exercise which seems to have proved nearly as successful in his fifteen cases as in Kaufmann's extensive experience with it.

44. **Induced Venous Murmurs.**—Muck describes and discusses the J. Müller test and test inhalation of amyl nitrite in estimation of venous murmurs on one side.

50. **Importance of Massaging the Prostate and Seminal Vesicles in Gonorrhea.**—Jacobsohn declares that far too little attention is paid to the prostate and seminal vesicles in treating gonorrhea. The difficulty of palpating the vesicles is mostly responsible for this, and he describes a method of bimanual examination which much facilitates exploration of the prostate and especially of the seminal vesicles. The patient kneels on the table, his thighs perpendicular, and leans his hands on the table or back of a chair nearby. The trunk is bent over in the lumbar region, the sacrum and thighs being held in the same plane, the seat drawn in. The examiner can then palpate through the relaxed abdomen with the finger tips of one hand working toward the forefinger of the other hand in the rectum. The bladder should not be full but need not be completely emptied as it is not in the way. The palpating fingers are worked in about a handsbreadth above the symphysis, to one side of the median line. They can be held flat or at an acute angle to the abdominal wall.

Normal seminal vesicles can be easily emptied by this bimanual procedure, and massage can be usefully applied when palpation reveals plastic infiltration or induration, or succulence testifying that the vesicles are distended with tissue fluids, or taut distention from pus. In several rebellious cases of gonorrhea this palpation revealed that the vesicles on one or both sides were hard and thick. In some cases the whole vesicle apparatus was blended into a thick mass, the details of which it was impossible to make out. Two case reports are given to show the mode of procedure. In one the gonorrhea had been self-treated for six months and then was given systematic and thorough treatment for four months without definite improvement. The prostate then was palpated as above described and found enlarged and hard, the left seminal vesicle much infiltrated, the right less so. Under bimanual massage alternate days, followed by rinsings, by the end of the month the prostate had subsided to normal size and the seminal vesicles could no longer be palpated. Clinically normal conditions were restored, and there has been no further trouble since.

51. **Acne and Tobacco.**—Weinbrenner relates that in eight cases of rebellious necrotic acne, the affection disappeared when the men gave up tobacco. The acne subsided completely

in a few weeks after the men gave up smoking. One of the men chewed tobacco, and this was the last one to recover, over two months elapsing before the acne disappeared in this case. Three of the men had concomitant stomach disturbances. The amount of tobacco consumed is not an essential factor; one of the men smoked only two or three mild *cigarillos* a day. He queries whether stomach disturbances play a part in necrotic acne, and remarks that he knows of no instance of necrotic acne in women.

53. **To Hasten the Diagnosis of Diphtheria.**—Langer relates that diphtheria bacilli can be decolored with alcohol much more rapidly than is the case with pseudodiphtheria bacilli. The latter are still gram-positive long after all cocci in the specimen are decolored. He found it possible to differentiate the alcohol-fast pseudodiphtheria bacilli by this means in a few hours, thus differentiating the disease the same day the specimen was received. He stains with brilliant green instead of gentian violet. After-staining with dilute fuchsin then shows up the bacilli especially distinctly.

55. **Care of Soldiers' Feet.**—Schede and Hacker in this concluding portion of their article give a number of exercises for the feet to keep them in the best of condition. They also describe ways and means to spare the feet unnecessary strain and abuse. They have organized a small dispensary for care of toenails and corns, such as only the rich have been able to afford hitherto. It has proved so useful that they urge the military authorities to organize similar dispensaries for care of the feet. They reiterate that the shoe should hold the foot firm up to the toe region, but here there should be space for the toes not only in width but also in height. Very few shoes allow the big toe to be flexed. This leads to degeneration of the flexor hallucis longus, which is especially important in maintaining the arch of the foot.

Wiener klinische Wochenschrift, Vienna

September 21, XXIX, No. 38, pp. 1193-1224

59 Enuresis in Soldiers. (Enuresis militarium.) K. Ullmann.—p. 1193. To be continued.
60 *Transfusion of Blood in Anemia. J. Philipowicz.—p. 1201.
61 Typhoid from Epidemiologic and Clinical Standpoints. A. Galambos.—p. 1201.
62 Typhoid with Exclusively Paratyphoid Agglutination. F. Pollak.—p. 1204.
63 Injuries from an Avalanche. (Verletzung durch eine Lawine.) N. Hackmann.—p. 1206.
64 Reinfection with Syphilis. (Zur Frage der Reinfektion bei Lues.) L. Lichtenstein.—p. 1208.
65 *Progressive Atrophy of Adipose Tissue. (Lipodystrophia progressiva.) J. Gerstmann.—p. 1209.
66 Case of Alum Necrosis of the Gums. (Alaunnekrose des Zahnfleisches.) C. D. Kessiakoff.—p. 1212.
67 Medical Estimation of Capacity for Sentinel Duty. (Leitpunkte zur ärztlichen Beurteilung der Wachdiensttauglichkeit.) R. Pollatschek.—p. 1221.

60. **Transfusion of Blood for Anemia.**—In the two cases reported the men were moribund from loss of blood after extensive wounds but were saved by transfusion of 200 and 250 c.c. of defibrinated blood, by an emergency technic.

65. **Progressive Wasting Away of Adipose Tissue.**—Gerstmann describes a case of progressive lipodystrophy. There are only sixteen cases on record to his knowledge. His patient is a man of 32 and the lipodystrophy was first noticed at the age of 10. This seems to be the first case known in a man. The face, arms and trunk are exclusively affected; the thyroid is enlarged, and there are symptoms indicating excessive thyroid functioning.

Zeitschrift für Geburtshülfe und Gynäkologie, Stuttgart

LXXIX, No. 1, pp. 1-186. Last indexed Sept. 18, 1915, p. 1065

68 *Hemolytic Anemia in the Pregnant with and without the Blood Findings of Pernicious Anemia. (Ueber die perniziosaartige Graviditätsanämie.) P. Esch.—p. 1.
69 Deformity of the Uterus from Hypertrophy of Persisting Distal Portion of Gärtner's Duct. (Ueber eine seltene Missbildung des Uterus.) W. v. Arx.—p. 52.
70 Perforation of Uterine Abscess into Abdominal Cavity. Recovery after Hysterectomy. (Fall von Uterusabszess mit Durchbruch in die Bauchhöhle.) L. Pielsticker.—p. 67.
71 *Principles and Technic for Paravertebral Nerve Blocking. (Grundlagen und Technik der paravertebralen Leitungsanästhesie.) P. W. Siegel.—p. 76.
72 Rupture of Body of the Uterus. (Zur Aetiologie der Corpusrupturen.) E. Sachs.—p. 108.
73 *Eclampsia as Result of Pressure on the Brain. (Die Eklampsie eine Hirndruckfolge.) W. Zangemeister.—p. 124.

68. **Hemolytic Anemia of Pregnancy.**—Esch's long article is an attempt to define better the clinical picture of the anemia of pregnancy, which resembles so closely the pernicious type, and discuss the preferable treatment. He gives the details of two cases in which the blood findings seemed to be identical with those of true pernicious anemia, and of four others with a less typical blood picture. These six cases were encountered in the course of three years at the gynecologic clinic at Marburg, and three of the women died. In only three of the cases was there hemorrhage in the retina and the spleen was enlarged in only three. Although the blood findings resemble so closely those of true pernicious anemia, yet the etiology and course differ widely. He cites various data from the literature to sustain the importance of the pregnancy and its lipoidemia as the responsible factors. The hemoglobinuria and the destruction of the blood in the placenta confirm the hemolytic nature of the anemia, either from pathologic exaggeration of the physiologic processes of hemolysis or by reduced resisting power on the part of the red corpuscles. The changes in the blood marrow are secondary compensating processes while the pathologic destruction of the blood, rendered manifest by the subicteric tint, urobilinuria and hemosiderosis, is the primary process. In all such cases the anemia does not develop until the first half of the pregnancy is past.

The inadequate supply of oxygen seems to benumb the patients so that the labor pains are scarcely noticed. Recovery is rapid after a turn for the better. Esch could find on record only six cases in which the later fate was known, the women having had no signs of recurrence during the years since. Four years have elapsed in two of his own cases and one year in another with no signs of further trouble. Only one case has been published in which true pernicious anemia developed a long time later. In two of Esch's cases delivery occurred the day the woman reached the hospital and in only one case was the interval as long as two weeks before the childbirth. Spontaneous premature delivery is the rule, and no tendency to improvement in the cases on record was apparent until after delivery. Consequently he is inclined to advocate prompt evacuation of the uterus as a leading principle in treatment, to spare the woman further stress. Experiences to date with this have been unfavorable, for which intercurrent infection has usually been responsible, or else all attempts at treatment came too late. The children seem to be nonresistant and succumb readily before or soon after birth. Only three are known to have thrived. One is now nearly 2 years old, one is a boy of 10, and one died before the end of the first year. Iron is not needed in these cases, as the hemosiderosis testifies. Arsenic is the main reliance.

Intramuscular injections of blood were made in five of his cases. No benefit was apparent in two, but in two others this harmless procedure seemed to be an important factor in the recovery. In one case marked improvement followed the first injection. One woman was given eight intramuscular injections—a total of 440 c.c. of defibrinated blood. The hemoglobin increased from 9 to 22 per cent. after the second injection in the course of twelve days, the reds ran up from 1,090,000 to 1,994,000 and the general condition showed great improvement. By the end of the fourth month the hemoglobin had reached 60 per cent.

71. **Paravertebral Anesthesia.**—Siegel writes from the gynecologic clinic at Freiburg to exol the advantages of the paravertebral technic for the gynecologic-obstetric field. He regards it as surpassing all other methods in ease and efficiency. In 1,000 cases the anesthesia was complete enough for the purpose in 95 per cent. It seems to be a great improvement over the lumbar and sacral technics, as he shows by comparison of the results in nearly 2,000 cases in which one or the other of these methods was used. The exact technic for this paravertebral blocking of the special nerves concerned is described with fourteen illustrations. Siegel relates

that in three instances the needle broke off. He does not think it necessary to search for the broken off part of the needle. Experience in two cases has shown that it causes no disturbance in the tissues. The scrap was recovered at necropsy in the third case. Death was due to factors apart from the anesthesia.

73. **Eclampsia Result of Pressure on the Brain.**—Zangemeister devotes fifty pages to arguments sustaining the assumption that the hydrops of pregnancy is responsible for eclampsia by involving the brain and inducing pressure on it. The early symptoms are those of pressure on the brain, and this may persist and prove fatal even when the convulsions have ceased or even without convulsions. The clinical picture of eclampsia forces us to recognize increased pressure on the brain as responsible for its main traits. This assumption is encouraging, as by watching out for and combating hydrops gravidarum we may be able to ward off eclampsia. The various measures applied in treatment of eclampsia act by reducing the edema and irritation of the brain. Labor pains raise the blood pressure and this in turn aggravates the pressure on the brain, while venesection relieves it.

Policlinico, Rome

October 15, XXIII, No. 42, pp. 1223-1246

74 *Aneurysm of the Renal Artery; Two Cases. N. Trulli.—p. 1223.
75 Clinical and Therapeutic Study of Injury from Asphyxiating Gases. (Avvelenamento da gas asfissianti.) R. Cormio.—p. 1231.

October, Medical Section No. 10, pp. 345-376

76 *Clinical and Pathologic-Anatomic Study of Leukosarcomatosis. (Mieloeritrocitoma mediastinico — Eritro-leucemia — Setticoemia da paratifo B.) C. Moreschi.—p. 345.
77 Pernicious Anemia. A. Roccavilla.—p. 367. Commenced in No. 8, p. 281. To be continued.

74. **Aneurysm of Renal Artery.**—The first of Trulli's two patients was a man of 74, and the tumor palpated in the kidney region was smooth and hard but very elastic. The general condition was good with no signs of metastasis in the glands, but the pains, radiating to the spine, the sense of weight in the legs, and profuse hematuria suggested cancer. Necropsy showed diffuse arteriosclerosis, concretions in both kidneys, and an aneurysm as large as a hen's egg in a branch of the right renal artery. The man had not been confined to bed until five days before death. He had complained for two years of the pains but this seemed to be the only trouble until toward the end. The second patient was a farmer of 66 who had been having attacks resembling angina pectoris during the last three years and for the last year pains in the left flank, and twice he had kidney colic. There was finally sudden intense pain in the left kidney region following a muscular effort and intense hematuria keeping up for two or three days. A smooth tumor was palpated in the left kidney region, not movable and scarcely tender. There was no pulsation in the tumor and no murmur could be heard in it. On the diagnosis of an abdominal tumor involving the left kidney, a laparotomy was proposed. It was refused and an intercurrent pneumonia proved fatal not long after. Necropsy revealed a true aneurysm of the inferior branch of the renal artery. The kidney contained a large stone with the mucosa ulcerated around it. Trulli compares these cases with others on record. With aneurysms of traumatic origin, pain and hematuria dominate the scene. Treatment should be on the same lines as for more accessible aneurysms. The connected kidney was pathologic beyond repair in both his cases, showing that, if at all practicable, removal of the entire kidney and aneurysm offers the best chances for recovery.

76. **Leukosarcomatosis.**—Moreschi's comprehensive study of the modern conceptions of leukemia and the connection between leukemic and neoplastic processes is accompanied by two colored plates, showing the blood and local tissue findings in a typical case of leukosarcomatosis. The patient was a lad of 16 with a myelo-erythrocytoma in the anterior mediastinum, and paratyphoid B infection. The glands and spleen revealed intense proliferation of myeloid elements. He emphasizes that the findings in this case sustain the Pappenheim-Ferrata theory that myelogony proceeds from a single mother cell, the cell which Moreschi calls the *linfoidocito-emocitoblasto*. From this are evolved and become differentiated the granulated elements of the white series as well as those of the hemoglobin series.

Riforma Medica, Naples

XXXII, No. 32, pp. 865-892

78 *Leg Ulcer Simulating Syphilitic Gumma. (Diabete fostatico di Teissier.) P. F. Arullani.—p. 865.
79 Soldiers "Wounded with Tuberculosis." (Per i feriti della tubercolosi.) A. Ferrannini.—p. 867.
80 Rapid Sterilization of Drinking Water. (Per la rapida potabilizzazione dell'acqua in campagna.) G. Grixoni.—p. 882.

78. **Phosphaturia Leg Ulcer Simulating Gumma.**—The differential diagnosis was obtained by exclusion of syphilis, tuberculosis, etc., by clinical and bacteriologic tests, and by negative inoculation of animals, and there was nothing to suggest hysteria. The blood findings were normal and the urine was free from albumin and sugar, but it contained large amounts of phosphates. This phosphaturia with the polyuria, polydipsia and bulimia, suggested Teissier's "phosphatic diabetes," and treatment on this basis soon cured the patient. Under tonics and large doses of phosphates, the ulcer healed, the general health improved, and strength was regained.

Cronica Medica, Lima, Peru

XXXIII, No. 7, pp. 205-232

81 *Tartrate of Antimony and Potassium in Local Treatment of Superficial Leishmaniosis. (Leishmaniasis cutanea curada por el tartaro emetico.) E. Escomel.—p. 207.
82 Subsidence of Gonococcus Arthritis in Little Girl under Vaccine Therapy. (Artritis blenorragica de la rodilla curada por la autovacuna.) G. A. Valle Riestra.—p. 209.
83 Subcutaneous Injections of Oxygen in Treatment of Gas Gangrene. N. F. Concha.—p. 213.
84 *Paroxysmal Tachycardia. M. Villacorta.—p. 215. Commenced in No. 5, p. 145.

No. 8, pp. 233-264

85 Extra-Uterine Pregnancy. (Consideraciones etiopatogenicas sobre la gestacion ectopica, con motivo de un caso de embarazo ectopico tuboabdominal.) C. A. Bambaren.—p. 233.
86 Tropical Medicine. (Leccion inaugural.) J. Arce.—p. 239.
87 Advantages of Potassium Permanganate in Superficial Infections. E. Escomel.—p. 248.

No. 9, pp. 265-340

88 Genesis and Treatment of Dementia Praecox. H. F. Delgado and C. A. Bambaren.—p. 265.
89 *Pathogenesis of Gallop Rhythm. J. Benavides.—p. 275.

81. **Tartrate of Antimony and Potassium in Treatment of Superficial Leishmaniosis.**—Escomel's patient had three ulcers on the legs and one each on the chin and one ear, rebellious to all measures for months, until he dusted them with tartar emetic after applying an anesthetic, a mixture of equal parts of menthol, cocain and crystallized phenol. The lesions were then covered with boric acid cotton and left undisturbed for twenty-four hours. Two intravenous injections were made of 5 c.c. of a 1 per cent. solution of the tartar emetic at a week's interval, and the local application was repeated once after four days. The cure was soon complete, the lesions below the chin and back of the ear, which had not been given local treatment, subsiding with the others. In another communication in the same number he reports a case of blastomycosis in which tartar emetic treatment failed to modify the disease and the main reliance had to be on the actual cautery. This failure of tartar emetic is the rule with blastomycosis, in marked contrast to its efficacy in leishmaniosis.

84. **Paroxysmal Tachycardia.**—Villacorta concludes his long review of the present status of paroxysmal tachycardia by emphasizing the lessons learned in regard to treatment from the modern conceptions as to the causes of paroxysmal tachycardia. We aim to prevent or abort the attack and ward off its return. To check the excessive action of the heart we can compress the pneumogastric, or apply electric stimulation, or tickle the pharynx to induce retching, or seek to distend the esophagus by having a chunk of bread swallowed. The patient is made to recline and take deep breaths, holding the lungs full of air for a few moments. If all these fail, he gives every ten minutes a small spoonful of ipecac jelly to induce vomiting or injects 0.01 gm. apomorphin

subcutaneously. Pituitary extract has given good results in some hands; this seems to retard the heart beat while raising the blood pressure and stimulating diuresis. An ice bag to the heart region and sedatives may be useful adjuvants. If it proves impossible to abort the attack, the heart must be strengthened with some stimulant. He gives strophanthin by subcutaneous injection once or twice, with an intravenous injection the next day if needed. Digitalis may be required if there is an actual organic lesion of the heart. To ward off return, the nervous system as a whole must be strengthened and stabilized, and the digestion brought to normal. In case of organic heart lesions, the whole mode of life must be regulated to conform to this, and heart tonics given at need.

89. **Gallop Rhythm.**—Benavides devotes nearly sixty pages to this study of the pathogenesis of gallop rhythm, based on the literature and ten cases from his own practice analyzed in detail. He regards it as a premonitory symptom of dilatation of the heart, of asystole, and frequently it persists after their arrival. It coincides with a multitude of factors liable to injure the myocardium. The intensity of the gallop rhythm, its constancy, existing valvular lesions and the rise in the minimal blood pressure, all indicate the extent of the danger confronting the heart. The gallop rhythm seems to be a disturbance in the tonicity of the heart, and the jugular rhythm observed with it is a parallel phenomenon resulting from the same cause. In his ten cases, heart or kidney disease, typhoid, syphilis or tuberculosis, alone or associated, was manifest in every case.

Siglo Medico, Madrid

September 30, LXIII, No. 3277, pp. 625-640

90 *Diphtheria Antitoxin in Spain. (Los peligros del suero antidiftérico. Su revision en España.) M. G. Alvarez.—p. 626.
91 Cocain Addiction. (Los cocainomanos.) A. S. Herrero.—p. 630.

90. **Diphtheria Antitoxin in Spain.**—Alvarez reproduces a number of the replies he received to a question blank sent to the physicians of Spain enquiring as to their experience with diphtheria antitoxin and any mishaps they may have had. Transient by-effects from the antitoxin seem to have been rather frequent but are growing less common as the antitoxin is being made now with greater care. These by-effects, pains in muscles or joints, edema, urticaria, etc., subside spontaneously in a little while without treatment. Symptoms indicating anaphylaxis are extremely rare. One fatal case was reported by Llorento among the 18,200 diphtheria patients at his institute. All are unanimous in asserting that the fear of by-effects should never deter from the use of antitoxin in diphtheria. But there is considerable divergence of opinion in regard to its use as a preventive, although all agree that about 35 per cent. of those coming in contact with diphtheria become carriers, and about 14 per cent. of the young people when diphtheria is epidemic. These facts justify the use of diphtheria antitoxin in hospitals, boarding schools, etc., when the disease is epidemic or when isolation is impracticable. Most physicians under other circumstances content themselves with isolation and disinfection, keeping close supervision over the other persons that have been exposed to the contagion, examining their throats carefully and systematically. Most physicians inject antitoxin when the clinical picture suggests diphtheria, without waiting for bacteriologic examination, but in institutions it is usually deemed safe to wait for the analysis.

Russkiy Vrach, Petrograd

XV, No. 35, pp. 817-840

92 Impotence as Cause for Divorce. (Nesposobnost k brachnomu sozhitiu kak povod k prekrashtsheniu supruzheskago coiuza.) L. B. Bertenson.—p. 817.
93 *Intravenous Infusion of Hypertonic Solution of Grape Sugar in Treatment of Purulent Processes. (Vnutrivennoe vlivanie hypertonic, rastvorov vinogradnago sakhara pri gnilostnikh zabolievaniakh.) G. I. Baradulin.—p. 833.

93. **Hypertonic Solutions of Sugar in Treatment of Sepsis.**—Baradulin remarks that in sepsis we have only serums and preparations of silver as weapons against the invading germs, while neither of these is of the slightest use in sustaining the strength by any nourishing property in them. At the same time, the loss of appetite and digestive power renders it particularly necessary to sustain the strength by administering nourishment in an easily assimilated form. This he accomplishes by using a solution of grape sugar instead of salt solution for subcutaneous or intravenous injection. He has been doing this on an extensive scale since the war began, and calls attention to his success with it, expatiating on its manifold advantages. He commends it for wounds in war and for purulent processes and sepsis in general. Under these conditions the tissues seem to be especially avid of sugar and use up huge amounts. At first he used an isotonic, 4.7 per cent. solution, but soon increased the strength until a 30 per cent. solution became the routine strength. He injects into a vein 250 or 300 gm. of this solution, repeating it in the severer cases to a total of two or three times a day, keeping this up at need for three or four days. In one very severe case twelve of these injections were made. The patient recovered. This sugar solution has a strong diuretic action, besides its nourishing properties, but its chief value is in nourishing the heart, which it thus tides past the danger point. His research on dogs has confirmed these and other advantages from the sugar solution. He induced purulent peritonitis in two dogs and injected the sugar solution twice in one dog, injecting 1 mg. per kilogram of weight. The animals were slaughtered the next day. The dog not given the sugar solution had no glycogen in its liver, while the liver of the other dog, injected with the sugar solution, abounded in glycogen. Baradulin warns that the infusion must be done with the greatest care, taking fully an hour to infuse the whole amount. His experience includes several dozen cases, and the results were so gratifying that he does not wait for further experience before calling attention to the excellent results from this hypertonic sugar solution as an improvement in every way over the usual saline. He gives no clinical details in this preliminary announcement.

Hospitalstidende, Copenhagen

October 11, LIX, No. 41, pp. 989-1012

94 *The Electromagnet in Differential Diagnosis of Gastro-Intestinal Disease. (Elektro-magnetisk Undersøgelse af Ventriklens og Colons Sensibilitet.) T. B. Wernøe.—p. 989.

94. **The Electromagnet in Differential Diagnosis of Gastro-Intestinal Disease.**—Wernøe has the patient drink a suspension of pulverized iron a few hours after a meal, and then he passes a magnet over the epigastrium, exploring thus the entire surface of the stomach. The iron particles are attracted and gather on the side wall nearest to the magnet. If this happens to be the site of an ulcer, there is pain at once, like the pain felt at other times from the ulcer. The same method of examination answers for the intestines, injecting the iron suspension into the bowel. In the fifty cases tested the results were so concordant that, although the number is small, yet it seems that we can rely on the diagnostic importance of a circumscribed pain in some special point of the abdomen, elicited by this means, as a sign of some localized lesion within. Diffuse pains speak for a more extensive lesions. Sharp stinging pains suggest an ulcerative process while only slight, pulling, dull pains are felt when the mucosa is still unbroken.

Wernøe meets the various objections that might be urged against the method, saying that the only real objections are the unreliability of the patient's statements as to the character of the pains, and the possibility of adhesions masking the true condition. He suggests that the same principle of the local action of the magnet might be utilized in therapeutics. By causing the accumulation of the iron particles at a given point they might possibly serve as a tampon at need. The action of the gastric juice on the iron will soon transform it into iron chlorid, but this is an old and well-known hemostatic. The magnet he used weighed 3 kg., connected with a current of 220 volts and 100 amperes, and he gave the iron in oatmeal gruel, a level teaspoonful to the liter. He relates the details of several cases of gastric ulcer examined in this way, the completely negative findings later, after successful treatment, confirming the reliability of the previous positive findings.